The Journal of the American Medical Association

VOL. XXIX. CHICAGO, ILL., SEPTEMBER 25, 1897. No. 13.

ADDRESS.

THE WORK OF PASTEUR AND THE MODERN CONCEPTION OF MEDICINE.

Delivered at the Sixty-fifth Annual Meeting of the British Medical Association, Montreal, Aug. 31 to Sept. 4, 1897.

BY PROF. CHARLES RICHET.

DELEGATE OF THE FRENCH GOVERNMENT AND OF THE FACULTY OF MEDICINE OF PARIS.

[From advance sheets of the British Medical Journal.]

It is not without emotion that I rise to address this learned assembly. I know indeed that I am addressing men who are not my fellow citizens, but among them are some, the children of our old French nation, who have the same mother tongue as we; they speak from childhood our beloved French language; they are therefore a little more than my fellow citizens, for they are my compatriots, and I feel myself animated by a truly fraternal affection for them, and as to my English colleagues they have given us evidence of so much good will and of a courtesy so delicate that I need make no great effort to assure them of my gratitude. In one word, although a stranger I seem to be among friends.

I am somewhat troubled also because I am addressing medical men and I am speaking before a medical congress. Now, although I belong in some small degree to the great medical family, since my father has conferred honor upon the profession of medicine by his labors and by his works, and although I have the great honor to be the delegate of the Faculty of Medicine of Paris, yet I am not a medical man, and a physiologist displays some temerity in venturing to speak before you on medical matters.

Still I have an excuse. It is this, that I desire to attempt to bring about a complete reconciliation between medicine and science. It may seem that this is commonplace and that any such attempt would be quite unnecessary. But it is not so, gentlemen. We might find perhaps somewhere, not I am sure, in this assembly, medical men ready to assert unhesitatingly and that there is discord between medicine and science, that all those sciences which are called ancillary, as physics, chemistry, physiology, are impediments with which the clinician has nothing to do. Yes, there are to be found in the world medical men, among them men of even high accomplishment, who are ready still to say: "What have I got to do with your experimental science? Observation of the sick and clinical study are worth more than all your clever experiments, and it is not from laboratories that the means of curing disease can come." Such an opinion appears to me to be erroneous, and I would with all the energy which I possess help to upset it. I hold that it is by experimental science alone that medicine has made and can make progress. It will suffice to describe the work of Pasteur, my illustrious master, in order to give you a convincing demonstration of this.

I shall not be contradicted when I say that the value of this work is greater than all that the history of medicine has given us since the commencement of our era. Through his labors everything has been renewed, regenerated, and, thanks to him, medicine has made more progress in the twenty years than has been made in the twenty centuries.

Louis Pasteur was born at Dôle in the Jura in 1821, and at the beginning of his career consecrated himself to the study of chemistry. He became deeply interested in a difficult and important problem—molecular dissymetery. Here was a question in pure chemistry which would seem to take us very far from medical questions, but it was to lead Pasteur directly to the study of fermentations. If a solution of tartaric acid (in the form of tartrate) be left untouched a change occurs after some time in the chemical constitution of the liquid, which before Pasteur's time had been overlooked. The original solution has no action on polarized light, but after fermentation this same solution has become capable of deflecting polarized light. Pasteur explained this phenomenon by showing that the original tartaric acid is a mixture of an acid deviating light to the right with an acid deviating it to the left, and that a process of partial decomposition takes place; one of the acids is destroyed and the other is not altered, so that the action upon polarized light previously absent by the mixture of the two acids becomes evident. Here we have a fundamental experiment. It is told how, when the young Pasteur desired to show it to Biot, that great physicist who had discovered the phenomena of polarization, the old savant grasped the trembling hand of the young man and before beginning the optical examination of the crystals submitted to him by Pasteur, said to him with tears in his eyes. "*Mon cher enfant*, I have loved science so much that in face of the beautiful experiments which you relate to me I can not prevent myself from being deeply moved."

The explanation given of this phenomenon at that time was that the tartaric acid was decomposed by fermentation. Men were then content to use this magic word, which appeared to explain everything, but which in reality told nothing at all. Neither Lavoisier, nor Liebig nor Frémy had been able to discover its meaning, and were reduced to holding a theory of half organized matter, a childish conception worthy of Paracelsus.

One of Pasteur's experiments, perhaps the most beautiful which he ever made, demonstrated the nature of this mysterious phenomenon. If a sugary solution of carbonate of lime is left to itself, after a certain time it begins to effervesce, carbonic acid is evolved and lactic acid is formed, which decomposes the carbonate of lime to form lactate of lime. This lactic acid is formed at the expense of the sugar, which disappears little by little. But what is the cause of this transformation of sugar into lactic acid? Well,

Pasteur showed that the efficient cause of this chemical action was a thin layer of organic matter; that this layer of organic matter consisted of extremely small moving organisms which increased in number as the fermentation went on. Their growth it is, then, which produces the phenomenon of the transformation of sugar of milk into lactic acid. If, for example, we take a sugary solution in which all pre-existing germs have been destroyed by heat, no lactic fermentation will take place. But if we introduce into this sterile liquid a small quantity of this layer of organic matter, such as could be obtained from any liquid in which normal lactic fermentation is taking place, we shall see the lactic acid again form rapidly in the new solution.

Let us dwell a little on this admirable experiment. Now-a-days it seems to us so extremely simple that we can scarcely perceive its importance. It seems to us now, in 1897, that from all time we must have known that an organic solution when heated was sterile, and that a germ would suffice to render it capable of fermentation. But this is a mere delusion; no, a thousands times no! This great fact of the generation of germs, was absolutely unknown before Pasteur, and the method of sterilization of liquids and of their inoculation with spores was revealed to us by Pasteur. It is the nature of great discoveries that they become popularized in a short time and thus very soon become elementary. A first year's medical student knows perfectly that which neither Lavoisier nor Liebig, nor Frémy, nor any one before Pasteur, had been able to perceive. One is always tempted to be ungrateful to great discoverers, for their revelations fall rapidly within the domain of common knowledge. They become so simple that they cease to surprise us. We do not think of being grateful, and we forget the efforts which genius has had to make to wrest the truth from jealous Nature. Gentlemen, let us not be ungrateful; let us remember that the recognition of the real cause of all fermentation (the development and germination of organized elements) dates from 1857 and from the celebrated memoir of Pasteur upon lactic fermentation. A new world was then opened to science.

Nevertheless this memoir of Pasteur, containing one of the fundamental discoveries of the century, was not welcomed as it ought to have been. At first its importance was not understood and afterward absurd contradictions were opposed to it. A whole series of beautiful and decisive experiments were necessary to prove that there was no such thing as spontaneous generation, and that sterile liquids remained sterile indefinitely so long as no germs were introduced into them. Pasteur devoted six years (1857-1863) to the proof of the fundamental fact that "organic liquids do not alter until a living germ is introduced into them, and living germs exist everywhere."

A great step yet remained to be taken. This was to determine the evolution of these germs, not merely *in vitro* but in the living organism. We to whom the idea of parasitism and microbic infection is now so familiar can scarcely conceive that it has not always been thus. The microbic theory has become so ordinary, so popular, that we are tempted to believe that the part played by microbes was understood even in the times of Hippocrates, but I assure you that in truth this was not the case, and for long enough after Hippocrates, the power of microbes was not known.

Pasteur, to whom, to Sedillot and Littré, we owe the word microbe, was the first also to explain to us in his essay on the silkworm disease, published in 1867, the part they played in the production of disease. He proved that the bright corpuscles found in the bodies of diseased silkworms are living germs, a distinct living species, a parasite which can multiply and reproduce itself and disseminate the contagion.

It was therefore with painful astonishment that I heard Prof. Marshall Hall recently say that the discovery of the part played by micro-organisms in disease was due to Koch and dated from 1876. Now, ten years before this, Pasteur had published his experiments in *pébrine* and *flacherie*.

Davaine had shown the part played by bacteria in anthrax infection, and the idea of infection and of contagion by microbes in the higher animals as well as in the lower had become a common place, not indeed in the medical world, but in all laboratories.

Thus, by successful steps, did the work of Pasteur develop in all its greatness and logic. In the first place, in order to elucidate a chemical problem he studied tartaric fermentation, then he was led to study lactic fermentation, and he showed that they were biologic phenomena. He then pursued the analysis of this phenomena with all its consequences and was led to the conception of disease, due to the development of a parasite.

The normal living being follows out its course of growth without the development of any organic parisite in its tissues or in its humors. But if these humors or tissues happen to be inoculated with an organism capable of developing, then this small living thing multiplies the higher organism infected, and the whole body becomes as it were a culture fluid, in which the pathogenic microbe propagates itself, a center of infection which scatters the disease by sowing the noxious germs wherever it goes. Thus arose the new conception, profoundly new not only for medicine but for hygiene—*Disease is Parasitism.* From thenceforth we understood the meaning of the words "infection" and "contagion," previously mysterious.

It is true that Pasteur did not discover all the microbes of all contagious diseases, but this is of small moment since he was the first to discover that infection was a phenomenon of microbial parasitism. All those who after him have proved points of detail, however important or fundamental they may be, have but followed the path traced by the master. Whether they will or not, they are all the pupils of Pasteur, as those who follow the study of chemistry are pupils of Lavoisier.

The greatest of Pasteur's disciples, Robert Koch, although with some ingratitude he refuses to recognize his master, has only perfected certain points in *technique* and applied his ingenuity and his perspicacity to the solution of questions which in spite of their practical importance are still secondary. He has not, in fact, been able to do anything new except upon points of detail; all that is essential comes from Pasteur himself.

Need I say that this idea of the microbe, of the parasite, has become the basis of medicine. If we take up treatises on pathology written before this prodigious revolution, we shall be astonished by the insignificance and the nothingness of these very ancient books. Yet they are not really very old, they are dated 1875 or 1880, but as one reads them it seems as though several centuries must have intervened between these venerable writings and modern

books. I know an excellent article on tuberculosis written in 1878, before the microbe of tuberculosis had been discovered. Well, this article belongs to another age, it belongs no longer to medicine, but to the history of medicine, for it swarms with mistakes and incredible errors with regard to pathologic anatomy, etiology, prophylaxis, treatment; in fact, from every point of view.

In ten years medicine has been entirely overturned and re-made. It is being re-made every day. Every day brings some new discovery in matters of detail, but the great principle is always there and it must always be attributed to the one initiator.

This is not all. Another new and great discovery was to be made by Pasteur himself, and to constitute the supreme development, the culminating point as it were of his life's work. This is the principle of vaccination. By a series of researches, admirable for their precision, Pasteur proved that the pathogenic microbe could be attenuated, that is to say rendered incapable of causing death. But though this microbe does not cause death, yet it can produce the disease; a disease sometimes so attenuated as to be almost imperceptible. Now the living being which has suffered from this attenuated disease is protected against its more serious forms and borrowing the word consecrated by the immortal discovery of Jenner, Pasteur said that we have here *vaccination*.

Fermentation, infection, contagion, vaccination; here in four words we have the work of Pasteur. What more need I say? Do not these four words possess in their simplicity unequaled eloquence?

Can any one longer maintain that the progress of medicine is not due to experimental science? Does not all this knowledge of microbes and of the part which they play in disease imply immediately and necessarily immense progress in therapeutics?

ANTISEPTIC SURGERY.

To take but one example, I will cite the application of microbial theories to surgery.

There was a time when erysipelas, purulent infection and hospital gangrene decimated those upon whom operations had been performed, when puerperal infection claimed a terrible number of victims. It seems to us now-a-days that the medical profession before 1868 were blindfolded and that their blindness was almost criminal. These are now no more than historic memories. A sad history, doubtless, but one which we must look at coolly in order to understand what science can do for medicine. Left to their own resources, practitioners of medicine during long centuries could do nothing against erysipelas, against purulent infection, against puerperal infection, but basing itself upon science surgery has been able to triumph over those odious diseases and to relegate them to the past.

Let me here introduce a reminiscence. When on the occasion of his jubilee, a great celebration was prepared for Pasteur in the Sorbonne, in the presence of the leading men of science of the world, there was a moment when all hearts were softened—the moment when the great surgeon who was the first to perceive how to apply to the practice of his art the theory of pathogenic parasites, when Lord Lister drew near to Pasteur and gave him a fraternal embrace. These two great benefactors of humanity, united in their common work, afforded a spectacle never to be forgotten, a striking reconciliation of medicine with science.

But the apogee of the glory of Pasteur was the discovery of the new treatment of hydrophobia. No one of his scientific conquests was more popular, and from France and from the whole world there arose a long cry of admiration. Perhaps in the eyes of biologists this discovery possesses less importance than his labors with reference to the fermentations and to vaccination, but for the public this was the chief part of Pasteur's work. And men of science also were forced to admire the scientific courage of Pasteur, who putting aside the precise methods which he had bought and discovered knew how to devise new methods to meet the exigencies of the circumstances and how to put them victoriously into practice.

Thus was finished the work of Pasteur. He was spared to take part in the triumph of his ideas and to be a witness of his own glory. If, like so many discoverers, he had sometimes in his earlier days known conflicts and hatreds and petty quarrels and foolish objections, nevertheless he had not to deplore the ingratitude of mankind. He died full of honors, surrounded by admiration, respect and love. For him, renown had already commenced when he died.

And now let us turn back to consider the indisputable union of medicine and of science. This in fact is what ought to strike us in the work of Pasteur. It is not only in general biology and in the progress of our knowledge that his work is great, it is still more in its immediate practical applications. The great biologists of our century, Lavoisier, Claude Bernard, Darwin, have without doubt left behind them work which by reason of its conquests of new births is not inferior to the work of Pasteur, but these new truths do not lead to any such immediate application as antisepsis, the treatment of hydrophobia, anthrax, vaccination, or the prophylaxis of infectious diseases. Pasteur was not only a man of science, he was also a benefactor, and there is scarcely one who can be compared with him as a benefactor of suffering humanity except Jenner, who found out how to preserve thousands and thousands of human beings from the most hideous of all diseases.

Further, Pasteur brought back medicine into the true way of science, even after Magendie, Müller, Schwann and Claude Bernard, it might still have been asked whether all these experiments establishing so many important truths had really been of any advantage for the relief of the sick. To discover, as did Schwann, that living beings are an aggregate of cells; to prove as did Claude Bernard that the liver forms sugar; to establish as did Darwin that living species can be transformed by the influence of long accumulated variations in the environments, these are admirable pieces of work, but work in pure science which had not any immediate therapeutic results. Strictly speaking then it was possible to maintain that clinical medicine did not derive any benefit from such investigations. I do not for a moment believe that this opinion had a shadow of a foundation, but before the time of Pasteur it was not so absurd as it has become since Pasteur. Since Pasteur no man can, without incurring the charge of monstrous inaptitude, refuse the rights of citizenship in medicine to experiment and to biology.

And to speak the truth, men of science and biologists, as though their ardor had been redoubled by the renovation of medical ideas, have during these last ten years made discoveries which have introduced into medical science new elements which clinical

observation alone had been absolutely incapable of discovering. I will cite a few examples—the action of the thyroid gland, the Roentgen rays, pancreatic diabetes and serum therapeutics.

Physiologists had shown long ago that the ablation of the thyroid gland led to serious results. Schiff had proved this as long ago as 1857, but the explanation of the phenomenon did not become clear until Claude Bernard, but especially Brown-Sequard, had demonstrated the existence of internal secretions of glands which pour into the blood their products that probably neutralize certain toxic substances. This led Vascole and Gley to inject into animals from whom the thyroid gland had been removed, the juice of the thyroid, thus prolonging their existence. The therapeutic conclusion to be drawn was obvious, namely, to treat the unfortunate subjects of cretinism or of diseases of the thyroid gland by the injection of extracts of the thyroid body. You know the result has been most happy.

This new treatment was a true experiment and as is the case with so many experiments the result has been a little different to that which was expected. The ingestion of thyroidin is not only a means of curing goiter and cretinism, but is also a treatment sometimes remarkably efficacious for obesity.

THE ROENTGEN RAYS.

The discovery of the Roentgen rays excited general enthusiasm. The research was made and success obtained, and as a matter of fact it is one of the greatest discoveries in contemporary physics. Now, you are not unaware that this Roentgen ray has been called to play a part, if not in the treatment, at least in the diagnosis of diseases, the importance of which goes on increasing from day to day. Physicists have discovered the principle, it is for medical men to follow up its application.

PANCREATIC DIABETES.

The existence of pancreatic diabetes was suspected vaguely by a clinical physician, Lancereaux, but the means which clinical medicine and pathologic anatomy placed at his disposal did not give him the power to solve the problem. In spite of his perspicacity he could do no more than note a certain correspondence between diabetes and the lesions of the pancreas. How could more have been learnt if we had not the resource of experiment? Two physiologists, Mering and Minkowski, have had the good fortune to show that ablation of the pancreas determines glycosuria, to show that there is a pancreatic diabetes, and they have studied its various conditions with great ability.

SERUM THERAPEUTICS.

I come now to serum therapeutics, a direct consequence of the labors of Pasteur. This is a mode of treatment born of experimental method alone. Here again science has done for the art of medicine that which clinical observation, left to its own resources, could never have accomplished.

Permit me now to show how serum therapeutics is derived directly from physiology and experiment, and pardon me if I am forced to speak of my own work; I shall do so I hope without any vanity. I know very well that we always owe to our predecessors and to our rivals much more than our pride admits, and that the experiments and the ideas which succeed are not always those which have been conceived methodically.

About 1887 M. Chauveau had shown that French sheep could contract anthrax, and that they are very easily infected by the bacillus anthracis, the microbe of anthrax, if small quantities of the bacillus be injected under the skin. But Algerian sheep seem to be safe from the disease. In vain is the bacillus anthracis injected into them; they do not contract anthrax. They are refractory to this disease and possess a remarkable immunity to it. Having reflected on this strange fact I framed the hypothesis that the cause of the immunity of the Algerian sheep, which are absolutely similar from the anatomic and zoologic point of view to French sheep, depended upon chemical substances contained in the blood, and that in consequence we might hope to confer immunity on French sheep by transfusing them with the blood of the Algerian sheep. It is, however, difficult to make experiments on sheep. Therefore, with my friend Hericourt, who has been throughout the researches my tireless fellow-worker, I took animals of two different species, the common victims of physiologists—rabbits and dogs.

Just at that time we had been studying a microbe nearly related to the staphylococcus albus, the staphylococcus pyosepticus, which in rabbits produces enormous subcutaneous swellings when injected under the skin and causes death in 24 or 36 hours. The dog on the other hand seems to be almost refractory to inoculation with this microbe. We therefore attempted to transfuse the blood of the normal dog into rabbits by intravenous injection, but this operation did not succeed, for the transfusion of dog's blood into the veins of the rabbit even in a dose of only ten grams rapidly causes death.

It then occurred to us to resort to peritoneal transfusion in place of intravenous transfusion. In this way we were able to introduce into the organism of the rabbit 50 or 60 grams of dog's blood, and had the good fortune to see the experiment succeed completely. Rabbits transfused with the blood of the normal dog survived the inoculation of the microbe for four or five days, and the rabbits transfused with the blood of a dog vaccinated against the microbe did not die, and were in fact hardly ill at all.

This experiment, which was made on Nov. 5, 1888, is as it seems to me the very basis of serum therapeutics. It in fact proves that the blood of animals refractory to a disease contains chemical bodies which counteract the effects of the specific pathogenic microbe of the disease, and we understood its importance from the first, for having established the general pathologic principle we resolved to apply it to a disease of man.

For several days, then, Hericourt and I debated the question whether we should experiment with one or other of the three diseases—anthrax, diphtheria or tuberculosis. Unfortunately we decided for tuberculosis. Its microbe is easily cultivated and, as you know, it produces greater ravages among men and animals than any other disease. We set to work at once, but, as you will understand, time was required before we could obtain definite results. Still, in a year's time we were able to show that the injection of dog's blood into rabbits retarded enormously the development of tuberculosis. It was, nevertheless, necessary to pass from experimental physiology to human therapeutics. Taking advantage of an observation of Bouchard, to the effect that the serum of refractory animals is as active as the whole blood, we were able

to inject the serum in tuberculous diseases. The first sero-therapeutic injection was made by us on December 6, 1889.

At first we had for a time great hope. Yes, in truth, for several weeks we believed that we had discovered the heroic treatment of tuberculosis. For several weeks the various patients that we had under treatment found that their strength was renewed, that their appetite returned, that their weight increased and that cough and expectoration disappeared almost completely. But, alas! it was no more than a transient improvement. A month, or a month and a half, later the pitiless disease resumed its course and the sero-therapeutic treatment turned out to be inefficacious. Happily, while by the most diverse plans we were in vain searching for a method of treating tuberculosis by serum, a German experimenter, Behring, after studying the effects of the serum of refractory animals upon diphtheria showed (in 1892) that this serum is wonderfully efficacious in the treatment of the disease. He applied the serum method of treatment not only to diphtheria, but also to tetanus, and at first in animals and afterward in man he obtained results which were really marvelous. Gentlemen, you know the rest and I need not tell you that this sero-therapeutic method improved and popularized by Roux in 1894 is now a treatment without compare. The statistics on this head are absolutely conclusive. The mortality of diphtheria, which was 45 per cent., has fallen to 15 per cent. That means for the city of Paris alone an annual saving of about one thousand human lives; for the whole of France nearly ten thousand lives. We may take the same proportion for Italy, Germany, England, the United States, Canada and Russia and may estimate the number of infants which serum therapeutics snatch from death at about fifty thousand.

In other diseases the results of serum therapeutics have been much more open to criticism and it would be necessary in order to arrive at a satisfactory conclusion to discuss them in detail. I can not attempt to do this here for it would be an abuse of your patience. I will content myself by venturing the opinion that the last word has not yet been said about serum therapeutics. The organism is endowed with marvelous power of resisting the poisons secreted by microbes. It sets to work in its turn to secrete counter-poisons which neutralize the poisons secreted by the microbe. The antitoxins of the organism combat the toxins of the parasite, and in the future the art of serum therapeutics will be to seek in these resisting organisms the antitoxins fabricated by their cells.

Thus on whatever side we turn we find that medicine has always been guided by experimental science. By experiment and by science it is compelled to march forward. This was true in the time of Harvey, for that immortal physiologist had to meet the opposition of physicians. This was true also in the time of Lavoisier, when by a few decisive experiments he proved the chemical nature of the phenomena of life. But how much more true is it at the present time, since Claude Bernard and above all Pasteur have by experiment laid open a whole world and had warranted us in conceiving the widest hopes for the future of medicine!

The part of the man of science and of the physician are very different. The physician ought to be conservative, applying methodically the teachings and the precepts which he has received. He has no right to experiment upon his patients or to permit human life or human suffering to be risked on fantastic theories. But the man of science ought to be a revolutionist. He ought not to be content with the doctrines which he has been taught. The opinion of the master ought to be but a light weight upon his mind. He ought to seek on every hand for facts which are new and even improbable. Darwin says somewhere that he made the experiments of a fool, and often it is right to attempt that which appears contradictory to all the most received and classic opinions. Without this spirit of adventure, without this scientific daring which opens up new horizons there is no progress.

The task of the explorer or of the pioneer is not that of the physician. He ought to be careful to keep himself abreast of all scientific progress in order that his patients may have the benefit of it, but he can not advance the progress of science, save within restricted limits. Having no right to experiment he is almost powerless to solve the difficult problems which arise.

It is the duty of the chemists, the physicists, and above all the physiologists to grind medicine into the new ways. They have not to take the heavier responsibility of a human life upon their shoulders and nothing ought to check their audacity. You, gentlemen, have not the right thus to be audacious, you need prudence and moderation, and convinced as I am of the power of the experimental science I still think that the applications which the chemists or the physiologists suggest to you should only be accepted with considerable caution. It costs us nothing after a few experiments which have succeeded fairly well to say to the physician, "Try that on your patients." Upon knowing very well that our responsibility is *nil* and that the ancient axiom *primo non nocere*, an axiom which ought to be your strict rule of conduct, does not in any way apply to us. You see, therefore, that it would be unjust to make it a matter of reproach to physicians and surgeons that they have not made great scientific discoveries. This is not their mission. It is theirs to relieve human suffering and to seek among new scientific truths that one which is most proper to relieve or to cure the sick.

Nor can I understand how any one should have wished to create an antagonism between medicine and science. To suppose that they are in contradiction is to show that we understand nothing about either the one or the other. It is not reasonable to assert that the one is superior or inferior to the other; they are different in their means and in their ends. They are mutually complementary and both are equally necessary.

If I were ill, most assuredly I would not seek the assistance of a chemist or a physiologist, and medicine is not to be learned from the books of Claude Bernard or of Pasteur. Clinical instruction is necessary, such as long observation of patients alone can furnish. Prophylaxis, diagnosis, prognosis, therapeutics are not to be learned in scientific books. Something else is necessary—observation, long, patient observation, the old Hippocratic observation, without which there could be no good physician. Young students must be guided in the examination of patients by experienced practitioners and no one I presume would be guilty of the folly of proposing to replace the clinical ward by the laboratory.

But without laboratories the clinical department must remain incapable of scientific advance and this condition of stasis is most assuredly undesirable.

For in spite of all the progress which has been made, much yet remains to be done. Are not tuberculosis and cancer, for example, the opprobrium of medicine? I appeal to all medical men here present. Is there any one of you, gentlemen, who in the presence of such painful modes of death, does not feel himself humiliated to the bottom of his soul by his powerlessness?

Well, this feeling of our present powerlessness against disease ought to stimulate us to work. The work to be done is enormous, and we must none of us grow weary in our work. We physiologists must seek new facts; we must seek and seek again, seek always without being afraid of the boldest hypotheses and without putting any limit to our audacity, without troubling our heads as to the practical consequences which may flow from our discoveries, having only truth, divine truth, for our object. You, gentlemen, it is your duty to follow with the warmest interest both the general effect and the detailed results of biologic discoveries, in order to attempt to find some practical application. From this unceasing collaboration progress will be born. But it is necessary that men of science and physicians should both be animated with these two governing sentiments—faith in science and love of man.

ORIGINAL ARTICLES.

PERSONAL OBSERVATIONS AND EXPERIENCE WITH DIPHTHERIA ANTITOXIC SERUM.

Presented in the Section on Materia Medica, Pharmacy and Therapeutics at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY I. NEWTON SNIVELY, A.M., M.D.

INSTRUCTOR IN PHYSIOLOGY AND LECTURER ON PHYSICAL DIAGNOSIS IN THE MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA, PA.

In view of the American Pediatric Society's collective investigation on the value of the antitoxin treatment of laryngeal diphtheria, and the favorable comments it is calling forth from the medical press everywhere, the subject seems trite before such a body of representative medical men of our country. The committee of the Pediatric Society spared no pains in making their report, which includes only undoubted cases of laryngeal diphtheria treated with antitoxin, and deserves the highest commendation from the entire profession, as it will undoubtedly be the means of saving many lives by conducing to a more general and better employment of diphtheria antitoxin. The report shows that in operative cases of laryngeal diphtheria before the introduction of antitoxin 27 per cent. recovered, while when antitoxin is used 73 per cent. recover. The committee made the significant statement that even so high a percentage of recoveries is too low, from the fact that many practitioners still lack confidence in the remedy, and either from procrastination on their part or objections on the part of friends use antitoxin too late; others employ the remedy timidly and in too small doses, often one-tenth to one-fourth of the required dose being administered. Dillon Brown in his reply to the report said he fully agreed that the report shows a mortality from laryngeal diphtheria entirely too high, and that in his personal experience from Sept. 1, 1896, to April 1, 1897, the percentage of recoveries in laryngeal diphtheria under antitoxin treatment was 94.7 per cent., only one case out of twenty having died.

Regarding the opposition to the remedy, a report so favorable, resulting from the most crucial of tests made with the greatest care and impartiality, would seem an adequate reply. It is not more than was to be expected, that a remedy promising so much should meet with the keenest opposition. In this, diphtheria antitoxin has simply shared the fate of every distinct advance in medical science. Vaccination, anesthesia, hypodermic medication, antisepsis and the germ cause of disease are only a few notable examples. That antitoxin should still meet considerable opposition is not to be wondered at, considering the short time since its introduction.

The physiologist, the biologist, the bacteriologist and the chemist have all been working hand in hand toward a scientific treatment of diseases based upon the germ theory. The antitoxin treatment of diphtheria is an outgrowth of their researches, is founded on facts which were never universally accepted by the profession, and is employed only by the hypodermic method of medication, which still meets the most vigorous opposition in many communities. "The foundation of the treatment with antitoxin rests on the fact—and it is well to keep in view that it is a fact—that the blood serum of animals immunized against certain diseases contain substances called antitoxin, which when injected into healthy animals will give immunity to the same disease. Further, not only will the serum confer immunity to later infection, but will if not given too late prevent the otherwise fatal outcome of the disease in animals already ill." ("Am. System of Practical Medicine," Loomis and Thompson, vol. 1, p. 692.) "The power of the diphtheria antitoxin to neutralize the poisonous effects of the diphtheria toxin in animals is, as stated before, an absolute fact which has been shown to be uniformly true in thousands of experiments. We have every reason to expect that since the toxin in human diphtheria is, so far as we can determine, exactly the same toxin as that in diphtheria in animals, this power of antitoxin to make the toxin harmless will manifest itself in man under similar conditions." (*Ibid.* p. 693.)

It is evident that the physician who can not accept what he still calls the "germ theory of disease" is not open to conviction even by what Virchow designated the "brute force of figures." It has been well said that there are today probably not over four or five active opponents to the antitoxin treatment of diphtheria, whose names were known to the medical profession before the introduction of antitoxin.

That antitoxin is fully specific in experimental diphtheria is a matter beyond all peradventure. The bacteriologist will today inoculate a number of animals with the same culture of diphtheria bacilli; in half he allows the disease to run its course. The animals go through all the characteristic symptoms of the disease and die. In the other half he stops the process by an antidotal dose of antitoxin and the animals show none of the symptoms of diphtheria and live. If he does this fifty times with the same result, and if fifty bacteriologists all over the world do the same thing with the same results, who will attempt to say that antitoxin is not specific in these instances? If a dose of antitoxin affects inoculated lower animals so favorably is it not reasonable to suppose that it will do the same thing for infected man?

The report comes to us from all parts of the civilized world of hundreds of thousands of cases of diph-

theria treated with antitoxin with wonderful success, and these cases represent every phase of the disease, in all seasons of the year, in all possible variations of climate, and under the supervision of thousands of different physicians. Will any one attempt to dispute the honesty, sobriety and judgment of all these medical men? Has there ever been a parallel of antitoxin in all the annals of medicine? Has any drug ever been so uniformly accepted and so unanimously endorsed in so short a time by the profession as diphtheria antitoxin? In spite of all of these facts and the convincing figures of the American Pediatric Society we still see some adverse criticisms in our journals. Usually these critics have not tried the remedy and condemn it only on general principles. If they have tried the remedy and found it wanting in any particular it is because their cases were not a fair test or they used the remedy too late in the disease or in too small doses, or used a poor quality of the serum.

My own experience with antitoxin began Sept. 22, 1894, when I injected a child 8 years of age with 2 c.c. of Aronson's antitoxin on the tenth day of the disease. This was the first case treated with antitoxin in Philadelphia. The antitoxin was supplied by Dr. Lewis Jurist, who had recently received it from New York. It was of the strength of fifty units to each cubic centimeter, or one-tenth that I now use. Dr. Jurist had seen the case with me the day before, confirmed the diagnosis and suggested using the specimen of serum. The test was by no means a fair one. The dose, 100 units, was entirely too small and administered too late in the disease. The child died on September 24, and two days later I myself contracted diphtheria and was disabled for five weeks, but did not have antitoxin used in my own case, as there was none to be had in the city. The first case treated successfully was that of Dr. Muehleck, Oct. 2, 1894, and virtually constitutes the first legitimate trial of the serum treatment in the city.

Since July, 1895, I have used antitoxin in thirty-five consecutive cases of diphtheria freely and persistently. In every case a bacteriologic examination was made by another and disinterested physician and the clinical diagnosis thus confirmed. All of this bacteriologic work was done by the Board of Health physicians, and all the cases showed the Klebs-Loeffler bacilli with the clinical history of true diphtheria. In addition to the thirty-five cases of true diphtheria one dose of antitoxin was administered in eight cases which showed every aspect of true diphtheria, but in which the bacteriologic examination revealed no Klebs-Loeffler bacilli. For this reason these are excluded from this report; but I wish to say that all recovered. The pseudo-membrane in the majority of cases promptly disappeared and the antitoxin seemed to have only good effects. Besides administering antitoxin in five cases for other physicians which are not included in the above thirty-five, I immunized twenty-eight persons, none of whom contracted diphtheria.

It is not my purpose to speak at length of the clinical history of each case, but simply to classify them and report only the special points of interest in a few of the cases.

There were six cases of membraneous croup or laryngeal diphtheria with one death. The fatal case occurred in a child of four and one-half months, who was attended by a homeopathic physician for five days prior to the time when I saw it. It seemed as if the child would live only a few minutes, so severe was the stenosis. I immediately intubated and injected 1,000 units of antitoxin. The patient was much relieved by the tube, rested comfortably and even took some nourishment. In six hours I injected 1,000 units more in the hope that I could counteract the effects of the toxins, but thirteen hours after intubation the child died from broncho-pneumonia and exhaustion.

All my cases except the fatal one were injected on or before the fourth day of the disease. Two were injected on the fourth day, twenty-one during the first twenty-four hours, ten during the first forty-eight hours, one on the third day, two on the fourth day and one on the sixth day. The ages of the patients varied from four and one-half months to twenty-eight years. Two of them were 2 years or under, fifteen were between the ages of 2 and 4 years, twelve between 4 and 10, and six more than 10 years of age.

The amount of antitoxin used at each injection was regulated largely by the conditions. If the case seemed to be a bad one or had continued a length of time, a large initial dose was given. Frequently 2,000 units were given to a child 3 years of age and repeated in twelve hours if the patient had not improved sufficiently. I preferred to give too much rather than too little; that is to err on the side of safety to the patient.

Concerning complications in these cases I have only to say that since employing the serum treatment I see comparatively few complications in diphtheria. One of the above cases which developed a rather serious complication was that of a little boy 3 years old, who was injected on the fourth day of the disease. The child was suffering from laryngeal diphtheria and the parents were told by an experienced physician who, however, had not used antitoxin in the case, that the child could not recover. When seen at midnight the case seemed hopeless. The patient was bringing into play all of the extraordinary muscles of respiration. I intubated at once and then injected 2,000 units of Extra Potent antitoxin. I remained with the child myself for several hours to study the effects of the remedy and if necessary remove or reinsert the tube. It was truly a pleasure to note the change in the child's entire condition. Respirations became easy and regular, his countenance was more natural, and he fell into a restful sleep. When seen the next day he was comparatively comfortable and had taken quite freely of milk and whisky. I, however, injected 2,000 units more ten hours after the first injection and allowed the tube to remain forty-eight hours. I found it necessary to administer a third dose on the fourth day, making in all a total of 5,000 units. This patient developed suppurating cervical glands from streptococcus infection, also paralysis involving the faucial muscles and the muscles of the lower extremities, but is perfectly well today.

In all my cases the urine was examined at the time the antitoxin was injected, and forty-eight hours after if it was possible to secure a specimen. Not a single case examined showed kidney complications after the injection if they were not present prior to the administration of antitoxin. I do not believe the kidneys are ever effected by the treatment, but that when the urine shows the presence of nephritis this is the result of the diphtheria, or that the condition existed prior to the disease.

With the exception already noted, my experience has been with the Philadelphia product (Mulford's) and recently entirely with the concentrated form. I can fully endorse what has been said by the American

Pediatric Society and others regarding the superiority of concentration in antitoxic serum.

In studying the literature of the opponents to the antitoxin treatment of diphtheria the two facts to be noted are, first, that the great mass of it belongs to the first two years of the antitoxin period; and second, that in recent criticisms the tactics are entirely different from those in the earlier charges. I may state here that in taking up this subject I had before me a complete file of all the claims of the opposition, and that no pains have been spared in studying each feature and attaching thereto its full importance. While time does not permit, nor indeed the occasion demand, that every detail be taken up, I purpose to select those claims which, to the physician unfamiliar with the production and value of the remedy, seem to have most weight.

The earliest charge was that antitoxin is only another product of the German laboratory and that it possesses no more value than did "Koch's lymph." As the figures from the hospitals where it was being tried disproved this assertion and the remedy began to be employed in private practice, every conceivable ill effect was ascribed to the remedy. A summary of these so-called ill effects, it is to be noted, contains every effect which classic descriptions of diphtheria ascribe to the disease. Matter of this kind makes up the mass of the early literature and is the great reference library to the physician who can not accept the germ cause of disease, or who is otherwise by principle antagonistic to progression in therapy and who wishes to place himself on record as opposing a "fad."

The occasion of much of the displacement of cause and effect was an early misconception of the non-toxic character of antitoxin. In the process of production it was reasoned, contrary to facts, that the horse was inoculated with the disease (diphtheria), and that the serum employed is consequently not the serum of health. The bacillus diphtheriæ, after developing powerful toxin, is killed by the addition of 1 per cent. trikresol or 2 per cent. carbolic acid, and the dead bodies of the bacilli filtered out of the bouillon containing the toxin, so the pure toxins only are injected; the horses can not, therefore, be given diphtheria any more than a patient taking strychnia could have a tree of nux vomica grow from him.

Since the volume of testimony in favor of antitoxin has become so large, the opposition is narrowed down to one or two of several claims here briefly stated: 1. Antitoxic serum is a foreign body in the system. 2. We do not know the nature or mode of action of the remedy. 3. It is uncertain in action and occasionally disastrous in effects. 4. The virtues of antitoxic serum are due wholly to the preservative contained.

Blood serum is not a foreign product in the animal economy, a fact which can not be stated of quinin, morphin and a thousand other recognized remedial agents.

Antitoxin has been found in small quantities in normal blood and in mother's milk.

It is true that we know little of its nature, except by its effects; yet this is equally true of other remedies, notably electricity. We do not know specifically how it acts, nor do we know how many other remedies act. But we do know that it either acts by neutralizing the toxins secreted by the diphtheria bacilli or by rendering the system tolerant to these toxins.

The claim that antitoxin is uncertain in its action arises from a failure to appreciate the therapeutic application and limitations of the remedy. In point of fact, diphtheria antitoxic serum is one of the most certain remedies in modern therapeutics, and this is the testimony of thousands of physicians who are relying solely upon it. As one of many who could be quoted, I present this by Dr. Wm. H. Park, professor of Bellevue Medical College: "I have seen, in watching more than 1,500 cases, no serious effects upon the heart, kidneys or nervous system which could be attributed to antitoxin, with the possible exception of two cases of scarlatina complicated with diphtheria. In these cases there was complete suppression of urine, which was probably due to the scarlet fever and diphtheria and not to the antitoxin." ("Practice of Medicine," Loomis and Thompson, Vol. I, fol. 701).

The so-called fatal cases, of which there are five or six that can not be satisfactarily explained because the proper data can not be secured, have called forth much of the recent opposition. One writer has seen in the use of antitoxin a possible medico-legal question, in face of the fact that every mortality rate where antitoxin was used shows a great saving of life. Dr. J. J. Kinyoun of the U. S. Marine-Hospital Service has stated that if antitoxin could have been secured and employed in every case of diphtheria in the United States during the past five years, at the lowest estimate 150,000 lives would have been saved. In this he but voices the sentiment of all the advocates of the serum treatment of diphtheria. Dr. Abraham Jacobi has said: "Nor is there a practitioner but has the right, or rather the duty, of giving antitoxin a place among his most reliable remedies. If present experience is confirmed by many more similar facts, it will be entitled to be claimed as a specific, though it have not the power to cure every case of diphtheria any more than quinin cures every case of malaria or mercury of syphilis" (Paper by Louis Fischer, *Medical Record*, Dec. 24, 1896). This statement was made before the supplementary report of the American Pediatric Society of which the *Medical News* says editorially, May 15, 1897: "The final word is spoken—a fact is before us." We have no other remedy that has half the evidence in its favor that diphtheria antitoxin now has, and the time is before us when the physician who ruthlessly permits his patients to die for want of a timely dose of antitoxin will be held chargeable at law.

Regarding these so-called fatal cases, Louis Starr writes: "That the antitoxin in itself is practically harmless may be considered as well established, in view of the countless number of injections that have been made (now numbering over a million, A. Jacobi) with but a few fatalities attributed to its use; and in these cases the evidence is either so complete as to clear the injection of all blame, or so incomplete as to allow of no positive deduction. The unpleasant effects occasionally noted, such as amorphous eruptions, fever and painful joints, are clearly due to the serum and not to the antitoxin; and as more concentrated serums are being put on the market these may be confidently expected to grow less in number, since the quantity of serum to be injected will thus be lessened in amount." ("Gould's Year Book of Medicine and Surgery," fol. 758.)

Various explanations of these cases have been advanced, but since the required data are wanting, none are satisfactory. The claim has been made that

by error in the production of the antitoxin a trace of toxin in the serum remained and was the cause of the death. This is impossible for three reasons: 1. The horses are not bled till several days after receiving the last toxin, and then only if the trial bleeding shows the presence of sufficient antitoxin. 2. The presence of toxins could not escape detection in the delicate process by which all antitoxin is standardized before being bottled. Again, diphtheria toxins in their most virulent form do not cause sudden death. In the instances cited untoward symptoms appeared immediately and death followed within five or ten minutes after injecting the antitoxin. To say that the serum was contaminated by pathogenic bacteria will not adequately explain, because no germs found in nature are capable of causing death within a few days, while those produced in the more favorable artificial cultures can not cause death, even in small animals, within several hours. The cases simply remain unexplained, and must be considered incidental to the treatment and not accidental. They have their parallel in the instances of other remedies of which cases are not reported.

It will be recalled by many that fatality was frequently attributed to the hypodermic method of medication when first introduced, and that many physicians even now refrain from employing the hypodermic syringe in patients apparently moribund.

There is no means possible by which we can determine the amount of toxin which has been absorbed or secreted by the diphtheria bacilli in the patient suffering with diphtheria, and therefore the only safe thing to do is to give a quantity of the antitoxin which will be sufficient to neutralize any quantity of toxin that may be secreted. The remedy is a harmless one, and if any mistake is to be made it should be on the safe side of giving too large, rather than too small a dose.

Finally, the charge that the virtues of antitoxic serum are due to the preservative and not to the antitoxin, is one which answers itself. The fact that one brand of antitoxin contains no preservative and that another contains only a pellet of insoluble gum camphor is sufficient. However, serum is too unstable a product to depend on when not well preserved. That carbolic and phenic acid will not, when administered hypodermically, yield all the results claimed for antitoxic serum is sufficiently evidenced by the fact that it is nowhere so employed.

I can not close this paper without again referring to my unbounded confidence in antitoxin, which has been bred by personal experience and the favorable comments from numerous competent observers. I believe it will do more toward prolonging the average human life than any remedial agent discovered during the present century. In my first twenty cases I used other treatment in connection with the serum, but as my experience with antitoxin increased and as I witnessed the results obtained by it, I began to rely entirely on this remedy. I now approach a case of diphtheria with none of my former dread, and feel that if I can see a case reasonably early my results will be uniformly successful.

2501 Oxford Street.

The **New York State Commission in Lunacy** reports a slight decrease in cases. On August 1 there were 21,730 inmates of public and private asylums, while on September 1 there were 21,699.

STATISTICS OF SIXTY CASES OF TYPHOID FEVER COMPLICATED WITH HEMORRHAGE FROM THE BOWELS.

Presented to the Section on Practice of Medicine at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY ROLAND G. CURTIN, M.D.
PHILADELPHIA.

During the last twenty years I have kept large card boards on which were the headings of the more important points to be observed in connection with hemorrhage of the bowels in typhoid fever, and whenever a case occurred of which I could secure the data, it was placed under the appropriate headings. In thus tabulating sixty cases we have a chance to observe the relative frequency of symptoms and fatality, as well as the effect of location, season, climate, epidemics, and other conditions which have an influence on the disease.

In giving you a report of the sixty cases that I have collected, the first point to which I will refer will be that of *age*.

Between the ages of	10 and 15	years	there were	3	cases.
" "	15 and 20	"	"	9	"
" "	20 and 25	"	"	15	"
" "	25 and 30	"	"	15	"
" "	30 and 35	"	"	9	"
" "	35 and 40	"	"	3	"
" "	40 and 45	"	"	4	"
" "	45 and 50	"	there was	1	case.
" "	55 and 60	"	"	1	"

You will observe that there are no cases reported under the age of ten years, but this may be accounted for largely by the fact that forty-eight of the sixty were drawn from hospitals where adults are generally treated.

The next point that I will consider is the sex of the patient. I find that the tables indicate that there were twenty-two females and thirty-eight males. In the Philadelphia Hospital, from which a large number of these cases were secured, the average number of male patients greatly exceeds the female, their statistics showing that, in the past ten years, 554 males, with 134 females, were treated. Taking the general statistics of the disease, the proportion of males would not be so great as this report would seem to indicate.

I published a clinical lecture in the Philadelphia Hospital Reports, in 1893, giving statistics of the first seventeen cases that I had gathered up to that time. Of this series five died and twelve recovered. Seven were treated at their homes and ten in the hospital, and of the five deaths but two were private cases.

In the last series of forty-three cases the mortality increased, twenty-three having died while twenty recovered. In five private cases two died, and in the hospital twenty-one died and seventeen recovered, making the mortality over one-half. What is the cause of this increased mortality?

These later cases have been collected since the introduction of the cold water treatment, which is used quite generally in the hospitals from which the cases were taken. In the private cases cold sponging was resorted to in every case reported in the last series.

Upon investigation I found that since the cold water treatment was instituted the number of hemorrhagic cases has considerably increased, according to the hospital records that furnish the data, and in addition the mortality of the hemorrhagic cases largely increased, viz., from five in seventeen, less than one-half,

to twenty-five in forty-three cases or over one-half. Another factor that must not be lost sight of is that for the past eight years we have had in our midst the more or less constant influence of the epidemic of influenza, which has caused a catarrhal fever, accompanied in some instances by hemorrhage of the bowels. In two such cases I have had the opportunity of making autopsies, and I have the report of a third where hemorrhage of the bowels occurred quite early in the course of the fever, causing death. In one instance the hemorrhage occurred first on the sixth day and death on the eighth. In these three cases no evidence of any disease of Peyer's patches or solitary glands was discovered.

If this influenza is capable of causing hemorrhage, why could not the influence which it has been exerting on a large percentage of the population for the past eight years, be a factor in producing hemorrhage in typhoid fever with which it is often complicated? It is well for us to study these statistics, which seem to indicate that something is increasing the number of hemorrhagic and fatal cases of typhoid fever.

Let us see what the effect is following the free use of cold to the surface as is so universally done in the hospitals. When you take into consideration that the application of cold drives the blood from the surface of the body, it must necessarily be followed by an increased amount in the interior, causing a congested condition of the internal organs, and if there happens to be a blood vessel weakened or opened by the operative process, it may give way or a clot be dislodged and a hemorrhage follow. The necessary disturbance in giving a cold bath, or the reaction following it, may have a tendency to produce the same result.

On inquiry I find that in two of the tabulated cases the hemorrhage seemingly took place while the patient was in a bath, and in one case immediately after a bath. One hemorrhage occurred while the patient was in a cold pack, and two just after a cold sponge.

These statistics would seem to indicate that it would be well to avoid cold applications to the skin where there is a tendency to hemorrhage, or where it has already occurred. I would also suggest that during the third week, when the sloughing process is most active, the cold bath or pack, if used at all, be used with great care, avoiding sudden and marked impressions on the external circulation. We may in this way avoid making the case a hemorrhagic one.

Temperature and hemorrhage.—A study of the temperature shows that in twenty-six cases it was lowered by the hemorrhage, in nine there was no seeming effect; and in seven there was an elevation immediately after, while seventeen were not noted one way or the other. By these figures we find that the fall in temperature is the best index of the time that blood is being lost, if the amount be large.

The bloody stool usually takes place some time after the hemorrhage has occurred, especially if it has not been severe. We can easily imagine that a patient might have a small hemorrhage today and if he was at all constipated the blood might remain in the bowel for one, two, or three days before being discharged; therefore we must not necessarily think, when we see blood coming from the bowel, that the patient is having a hemorrhage at that moment, for he may then be safely over it.

Color of the blood.—In six cases it was reported bright red; in fifteen it was altered; clotted in one; first bright red and then altered in twelve cases; dark and clotted in eight; venous in one; bright and dark red mixed in three; tarry in seven; not clotted and then bright red in two; not noted in six.

When the blood is quickly expelled it is less apt to be changed than when it is retained for a time in the bowel, as it then becomes altered by the intestinal secretions.

The length of time hemorrhage continued was 2 hours in 1 case; 6 in 2 cases; 12 in 3 cases; 1½ days in 2 cases; 1 day in 15 cases; 2 days in 8 cases; 3 days in 6 cases; 4 days in 2 cases; 5 days in 1 case; 6 days in 4 cases; 7 days in 1 case; 8 days in 1 case; 10 days in 1 case; till death in 1 case, and was not noted in 12 cases.

The number of hours was 1 in 24 cases; 2 in 15; 3 in 4; 4 in 3; 5 in 3; 6 in 4; 7 in 1; 8 or more in 4; and not noted in 1 case. No doubt, in some of the cases, each passage was counted as a separate hemorrhage.

The day of first hemorrhage was 1 on the 6th; 1 the 7th; 1 1 the 9th; 3 the 10th; 1 the 11th; 5 the 12th; 4 the 13th; 2 the 14th; 4 the 15th; 7 the 16th; 2 the 17th; 2 the 18th; 3 the 20th; 2 the 21st; 1 the 22d; 1 the 23d; 4 the 24th; 1 the 26th; 1 the 29th; 2 the 30th; 1 the 33d; 1 the 35th, and 1 on the 10th day of relapse.

The day of second hemorrhage was the 7th in 1 case; 11th in 2; 12th in 1; 13th in 1; 14th in 4; 15th in 2; 16th in 3; 17th in 3; 18th in 2; 20th in 1; 21st in 1; 22d in 2; 24th in 1; 25th in 1; 29th in 2; 31st in 2; 34th in 1; 35th in 1; 38th in 1; not at all in 13; not noted in 9; 11th day of relapse in 2; and after the first 30 days in 1.

The probable total amount of hemorrhage was 2 oz. in 3 cases; 3 in 1; 5 in 1; 8 in 1; 12 in 2; 1 pint in 8; 1¼ pints in 6; 3 pints in 7; 1 quart in 4; 2 quarts in 8; 3 in 4; noted as profuse in 2; very severe in 1; small in 1, and not noted in 9.

Complications as follows occurred: Neuritis in 1 case; uterine hemorrhage in 1; malarial hematozoon found in 1; periostitis and phlebitis in 1; la grippe in 1; phlebitis in 1; furnucles, meningitis in 1; organic heart disease in 5; furuncles in 1; excessive nervousness in 6; purpura hemorrhagica in 1; pneumonia in 2; late epistaxis in 3; nephritis in 1; convulsions in 1; otitis media in 1; cardiac murmur in 4; perforation in 1; pulmonary congestion in 1; none in 14; not noted in 16.

Unusual epistaxis.—Marked in five cases; unusually present in eleven; not present in twenty-four; and not noted in twenty.

Hemorrhagic diathesis.—Marked in one case; suspected in 5; not noted in 16; and no suspicion in 38.

Sequelæ.—Acute phthisis in two cases; anemia and periostitis in one; prolonged convalescence in two; prolonged convalescence and anemia in one; furuncles in one; phlegmasia in one; periostitis in one; not noted in seventeen; and no sequelæ in seventeen.

The conditions that seem to indicate a fatal termination in hemorrhagic typhoid fever cases are:

1. A tympanitic condition of the abdomen with a continual discharge of black clotted blood. The blood vessels may sometimes be kept patulous by the distended condition of the intestines.

2. Associated renal trouble, which alters the blood in some cases, rendering it less coagulable.

3. Marked organic heart disease. The blood being impoverished and lessened in quantity is propelled slowly and the tissues are consequently imperfectly supplied with blood. Under these conditions a hemorrhage from the bowel becomes the "last straw that breaks the camel's back."

4. Cases of hemophilia. The blood is so altered that there is little likelihood of its being staunched.

THE RATIONAL TREATMENT OF SUNSTROKE.

BY W. H. WEAVER, M.D.
CHICAGO, ILL.

That our treatment of insolation is almost entirely symptomatic is evidence that there is some point in the philosophy of its appearance or in the pathology which has been overlooked. Symptomatic treatment

always means either incurability or ignorance of the diseased condition. Often in our haste to find relief for the sufferer we neglect well-known facts and principles. That there should have been 2,038 deaths from sunstroke during the month or August, 1896, and undoubtedly an enormously greater number of unreported cases of milder degree making partial recoveries, indicates, at least, that there is room for improvement in its treatment. Secondary fever and headache, with a low form of meningitis, incapacitates many men who have not been killed outright by the stroke.

Resulting from the rapid transpiration through the lungs, and surface of the body containing 2,800 sweat glands to the square inch, there is a great reduction in the volume of the blood, as if in an evaporator. With the perspiration is lost a large amount of sodium chlorid, but very little, comparatively, of the waste matters and impurities of the blood. The loss of sodium chlorid diminishes the acidity of the gastric juice and it soon becomes inefficient. The drinking of large amounts of water during the process of digestion further reduces the digestive power and weakens the muscular coat of the stomach, resulting in its dilatation and gastro-intestinal catarrh. The continued absorption of the products of incomplete digestion thus loading up the blood with waste matters assists in the production of toxemia. The kidneys are sluggish because of the diminished quantity of blood. The scanty urine passed is as heavily loaded as possible with waste matters and is strongly acid.

Considering all these important factors, and possibly more, the resulting condition would be that of heat stroke or thermal fever, with great injury to the nervous system in severe cases. This high percentage of toxins and waste matters in the blood must be rendered innocuous. Nature attempts to do it by burning it up with a high fever. But as nature's fevers often get beyond control if allowed full freedom, we prevent a disastrous result by reducing the temperature of the patient. At one time venesection, free and copious, was practiced in India with such fatal results that it was abandoned. By this means toxic elements were removed from the body, but the percentage in the blood remained the same or increased from the lower arterial pressure and the increased inactivity of the kidneys. However, there is one case of which I have read the report but have since been unable to find it, where the blood removed was immediately replaced by the normal salt solution, with rapid and complete recovery of the patient. This procedure effectually reduced the percentage of toxins in the blood.

I would propose the use of artificial blood serum (Cheron's), which is always ready and requires no preparation except the aseptic needle and operator. Its use should be continued until the normal action of the kidneys is established, and the temperature reduced to nearly normal. By this means we restore the two elements lost in large amounts from the blood as a result of excessive heat. The treatment of remaining conditions or complications should be based on accurate knowledge of their causes. Dr. A. Lambert read a paper before the New York Academy of Medicine, May 20, 1897, in which he says that "the theory best suited to our present knowledge is that it is due to auto-intoxication, with heat as a contributing cause." This, then, ought to be the basis for the scientific treatment of the condition in all its manifestations. The initial treatment should probably always include the immediate use of the ice-cap and bath for high temperature and unconsciousness. Still, some cases die with low temperature while many recover from temperature ranging as high as 110 to 115 degrees F.; so that high temperature is not necessarily fatal, and it may be that if the theory of toxemia is made the basis for treatment, a much larger percentage of cases may be saved and make more rapid and complete recoveries.

126 State Street.

ANCHORING THE KIDNEY.

Presented to the Section on Surgery and Anatomy at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1–4, 1897.

BY R. HARVEY REED, M.D.

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF SURGERY AND CLINICAL SURGERY, OHIO MEDICAL UNIVERSITY; SURGEON TO THE PROTESTANT AND UNIVERSITY HOSPITALS, COLUMBUS, OHIO.

The frequent occurrence of hydro- and pyonephrosis warrants our study as to their cause and prophylaxis.

Hydronephrosis is the result of an occlusion of the ureters. This may be due to a calculus, adhesive bands, tumors, or by a kink obstructing the lumen to such an extent as to prevent the flow of urine from the kidney to the bladder. Experimentation by the author and others, where the ureter has been ligated in the lower animals, has demonstrated that the healthy kidney will endure an enormous amount of torture without undergoing degeneration. Under these circumstances it has been demonstrated that hydronephrosis may exist from ten to fifteen days with the kidney greatly distended without a breaking down of its substance. Notwithstanding this fact a continuation of the pressure will sooner or later be followed by pressure necrosis and pyonephrosis.

It is not my purpose in this paper to take up the question of hydronephrosis or pyonephrosis caused by calculi, adhesive bands, pressure by tumor, or by tubercular or pus infection. I shall confine what I have to say on these conditions to the causes arising from the mechanical obstruction due to the displacement of the kidney and their relief. While the congenital displacement of the kidney may be followed by mechanical obstruction of the ureter, we are apt to have this form of obstruction arising from a traumatism resulting in a kink of the ureter at the point of obstruction, and if not promptly relieved it may be followed by permanent obstruction resulting in inflammatory adhesions followed by hydronephrosis, and if not relieved, by pyonephrosis.

This brings us to the point of how we shall best relieve this pathologic condition. We all know, as in an ordinary hernia, it may be temporarily relieved by taxis or change of position so as to replace the kidney and by doing so relieve the obstruction for the time being. But also like hernia, it is liable to return, and while the patient may live for years in this condition we never know the moment a permanent occlusion may occur which will place the patient's life in jeopardy. If this be true, then we are justified in performing a radical operation whereby the kidney shall be anchored as near its normal position as possible.

Experience has taught the writer that like pessaries and trusses, abdominal palliative treatment which usually consists in abdominal bandages and compresses is of little or no value. While these are advocated in out text-books, and have been resorted to by many

practitioners, I am of the firm belief that their use is of little or no value in giving permanent relief. It is only necessary to go to the cadaver and examine for ourselves to see that a bandage can not be placed over the abdominal cavity with sufficient firmness to hold the kidney in place, for the reason if the bandage be drawn sufficiently tight to press upon the anterior portion of the spinal column itself, it would still leave

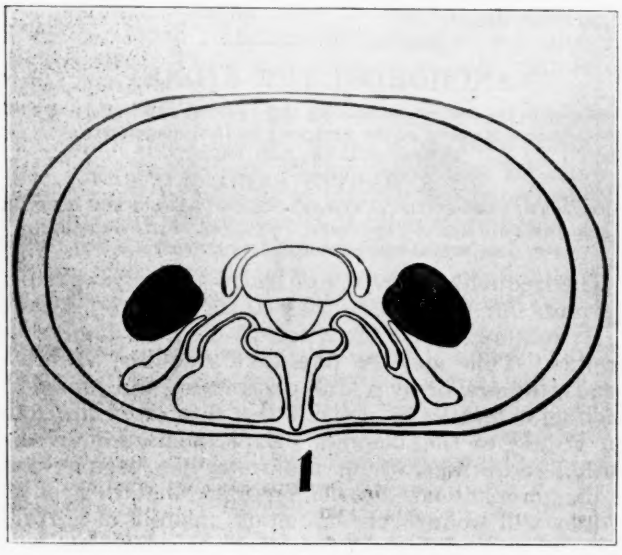

Diagram showing the relative relations of the kidney to the abdominal wall and the spinal column.

the kidney free to move underneath the bandage beyond any question.

A glance at the accompanying chart will aid in recognizing the fact that the kidney is so located, ana-

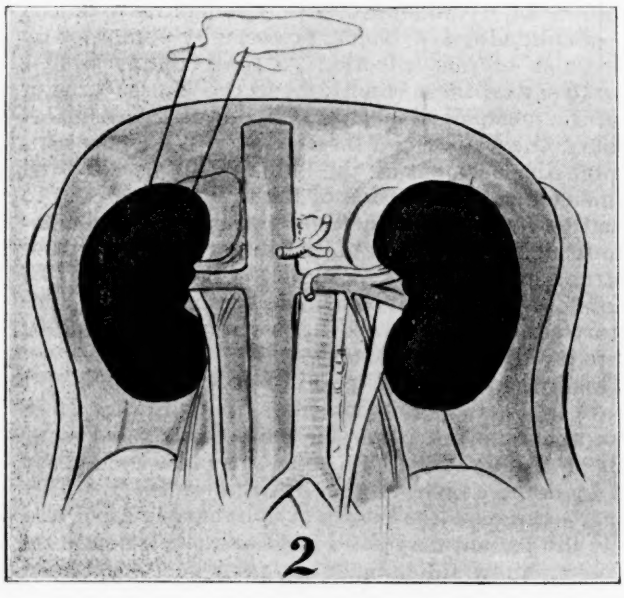

Diagram showing the insertion of the needles through the upper part of the kidney, one needle being inserted at a time.

tomically, as to be out of reach of general pressure made upon the abdominal cavity although that pressure may be of such a character as to press firmly upon the anterior and posterior portion of the spinal column. If this were done we all know that it would be followed by serious injury to the contents of the abdominal cavity, and to attempt to overcome this anatomic condition by the use of a compress would likewise be dangerous and useless.

I realize that there are objections to the radical cure of a floating or loose kidney, but I believe on the average, there is less danger to the patient who submits to a radical cure than to allow this condition to

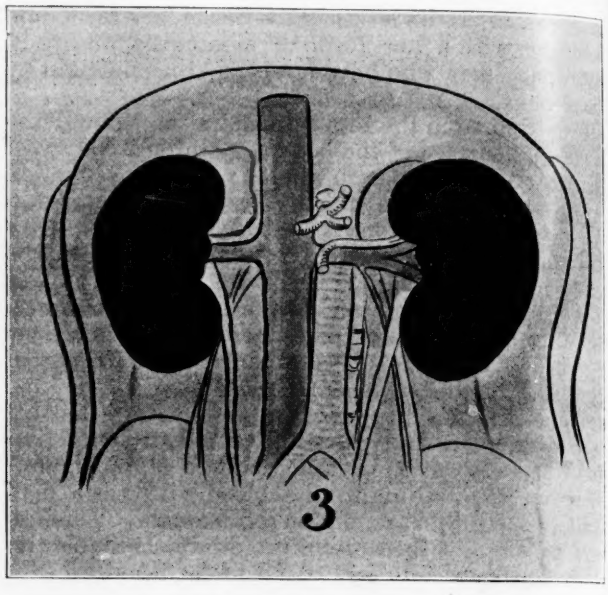

Diagram showing the anchor after it has been placed, as seen from the opening in the anterior abdominal parietes.

exist taking the chances of hydro- or pyo-nephrosis which is so apt to follow a chronic condition of this kind. The methods for anchoring the kidney, which have been handed down to us for ages in our text-books,

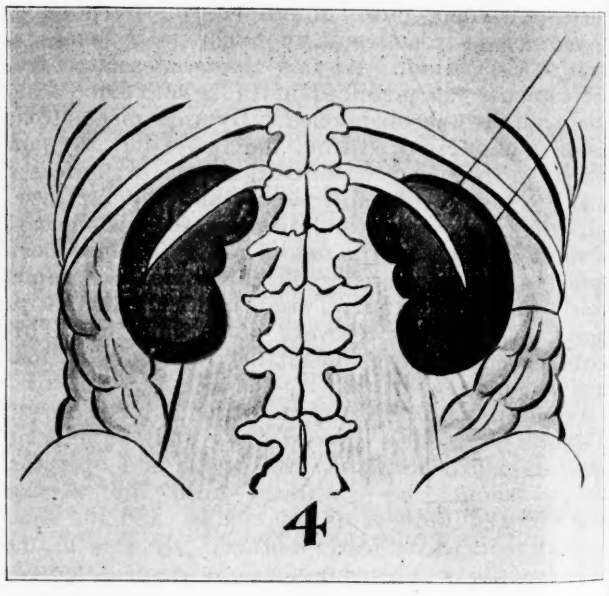

Diagram showing the exit of the needles posteriorly between the 11th and 12th ribs.

entail difficulties which I have endeavored to overcome and, while this method contemplates the opening of the abdominal cavity, I feel justified in advocating this procedure under the present advanced stage of aseptic surgery especially when the method proposed is so much more simple and so much easier performed.

Notwithstanding the attempts at describing this

method in previous papers, I feel that the description has not been clearly understood, basing the same upon the numerous letters I have received from members of the medical profession in different parts of the country. For this reason I endeavor to make this method more clearly understood by the accompanying illustrations.

In making this operation very few instruments are required. All that is necessary is a scalpel, two or three hemostats, a pair of small retractors and two straight needles which I have had made especially for this purpose, each one of which should not be less than six inches in length. These needles should be placed one at each end of a single suture which may be sterilized silk-worm gut, silk, kangaroo tail or catgut.

In making the operation a small incision is made in the abdominal wall over the normal position of the kidney. Usually this opening need not exceed two and one-half inches. The intestines are turned to one side and the kidney brought up or down, as the case may be, to its normal position, when the needles are passed through the cortical substance and brought out

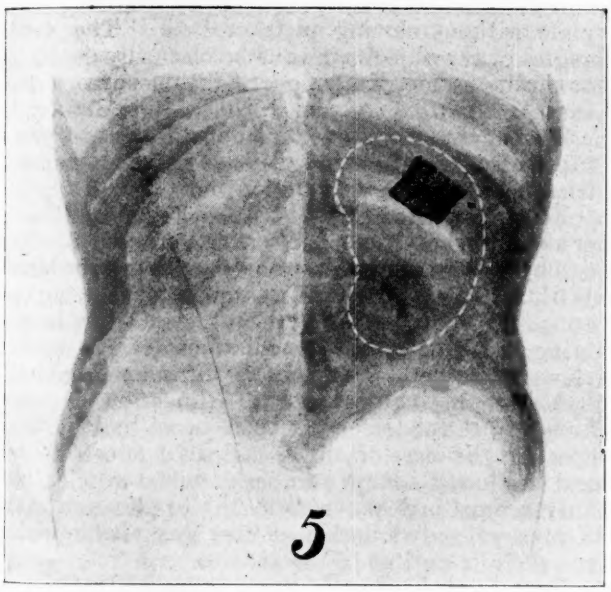

Diagram showing the ends of the anchor tied across a piece of gauze on the back, and the approximate position of the kidney.

between the eleventh and twelfth ribs on the back. By referring to diagram No. 2, the position of these needles will be observed as they appear from the front.

Referring to diagram No. 3, the position of the suture is shown, as seen from in front, while plate No. 4 shows the approximate position of the needles as they make their exit posteriorly.

After having passed the needles through the kidney, the lumbar muscles and the integument, the assistant makes traction on them until they have passed entirely through all these structures. In the meantime the operator should place his finger under the ligature and by the touch satisfy himself beyond a question that it does not include a loop of the intestine. It should only include the peritoneal covering of the kidney and the kidney itself. He should also guard against drawing the suture too tight, but just sufficiently taut to hold the kidney in place.

The ligature should be tied over a piece of gauze (see diagram No. 5) to prevent unnecessary irritation of the skin. There is nothing left to do now but close the abdominal wound, allow the suture to remain from ten days to two weeks, when it can readily be removed, which leaves the kidney free from all foreign substance. If deemed necessary two or three sutures may be inserted, but I have not found it necessary to insert more than two in any case I have operated on, and in the majority of cases I have only used one, with the most satisfactory results.

In conclusion I would recommend:

1. The radical operation for anchoring the kidney rather than trust to the palliative treatment.

2. The use of the double spear or staple suture, as demonstrated by the accompanying illustrations, in preference to any form of lumbar operation.

DISCUSSION.

Dr. I. N. Quimby—I would like to report a case in which the kidney got loose some time after it had been anchored, and this was doubtless due to the inflammatory action which was set up. I must not speak against the bandage as I think it does much good by compression.

Dr. J. D. Thomas of Pittsburg—Putting a ligature on the far side of the kidney to bring it up against the back is a good method, provided you feel sure it will stay there. The bandage does not cure the patient but gives some comfort. A certain number of cases will necessarily relapse.

Dr. Reed—In comparing my method with that of Dr. Thomas I must say that I think it a very advisable one, although there are some objections. The principal one seems to me to be due to the fact that the surgeon does not always find the kidney just where it should be, and another objection is the time it takes. It matters not how you anchor the kidney, you will have the same difficulty in getting it where you want it and holding it there. In my method there is no slipping up or down of the kidney, and you have it fixed so that it can not move after the first suture is put in. The simplicity of my method is a great point in its favor. In any method we must have adhesions formed in order to have the kidney remain in place. I have never had any trouble with the operation and I hope that the gentlemen will be kind enough to try it.

ROENTGEN RAY SKIAGRAPHY.

Presented to the Section on Surgery and Anatomy at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY De FOREST WILLARD, M.D.
PHILADELPHIA, PA.

Professor Goodspeed has very properly emphasized the importance of the study of normal living anatomic delineations. Even surgeons are not familiar with the appearance of the living skeleton *in situ*, and for accurate comparison we assuredly require a series of skiagraphic normals.

I was in my first efforts greatly puzzled in the interpretation of conditions either plainly or indistinctly seen in the skiagraph, and even after considerable experience am obliged to study with great care each representation in order to differentiate the abnormal from the normal conditions.

Although skiagraphy is a most valuable assistant to the surgeon, yet a word of caution is necessary. It has been most conclusively shown that the position of the tube, the direction of the rays, the method and time of the exposure, the magnification of portions of an object not in contact with the plate, the elongation of shadows from distant portions of an object, together with other varied conditions, may so completely distort the resultant image that error is certainly possible. A fracture may appear to exist when a bone has not been broken; and on the other hand it has been shown that a known fracture produced by osteotomy is not

discoverable. These facts make it imperative that the medico-legal value of these radiographs should be considered carefully, and pictorial evidence should receive only its due amount of consideration in connection with clinical evidence. Clinical evidence should have, and does have, large weight in the question as to results after fracture or other injury. Knowledge obtained by long experience and positive indications is far more valuable than any representation visible alone to the eye. A familiar example of this is seen in photography, an art which has obtained through many years a stage of great perfection, and yet representations taken by the same artist upon the same day of the same individual will yield results almost absolutely dissimilar; therefore, in suits for malpractice, while these skiagraphs may be useful, a single view is not indisputable evidence. The alleged deformity should be shown from a number of different points of observation, and comparison should be made with normal anatomic conditions. Recent callus is translucent to the rays and may appear falsely as a nonunion. Not only should the skiagraph be absolutely identified but all of the well-established rules of evidence should be rigidly followed.

Again, a simple deformity which does not interfere with function may not be of serious importance, and we have no right in the present state of our knowledge to compel a surgeon to secure results which were very probably unattainable under the conditions resulting from the particular form of injury or from environment. Valuable as skiagraphy is as an assistant to a surgeon, it is still a young science and its indications must be carefully and thoroughly considered in connection with clinical symptoms. A skiagraph is but one of a number of elements which will greatly assist a surgeon in arriving at a proper diagnosis and in the determination of the treatment to be employed.

FRACTURES AND DISLOCATIONS.—The importance of skiagraphy, particularly in fractures near the joints, is well illustrated by representations (shown on screen) which exhibit the difficulties in reduction and in retention of fragments.

For demonstrating fractures in the upper extremities the process is especially useful, and in hospitals where the patient can be taken to the scotoscopic room, the lower limb can also be readily skiagraphed. Doubtless an apparatus capable of transportation will soon be devised.

The progress of union in fractures can be steadily watched as the rays readily penetrate bandages, silicate of soda and even plaster-of-paris, although the latter contains lime. In non-union and in mal-union most valuable information can be elicited. In suspected dislocations where the local injury is great and the swelling considerable the advantages of this process are self-evident, and the necessity or non-necessity of operative interference is demonstrable.

In the present state of our knowledge, and with our well established clinical facilities for diagnosis, the securing of such deliniation. while very desirable, should not be considered an essential procedure, although frequently of great advantage.

In the difficulties surrounding injuries about the elbow-joint the assistance of anesthetics and the use of the rays will greatly simplify the problem.

The delineations of the thicker portions of the body are still only moderately clear; yet even fractures and dislocations of the vertebral bones, pelvis, etc., are recognizable.

In the skull the opportunities for misrepresentation are greater, but the difficulties will in time be overcome and the deadly and often undiscoverable fractures at the base may yet be made plain to our vision.

FOREIGN BODIES.—The detection of foreign bodies in the tissues is frequently a work of ease. Their location and depth is obtainable by pictures taken at different angles or by the device of comparative definition, such as has been shown by Prof. Goodspeed.

The locating of needles is still a problem (even though they are plainly visible in a skiagraph) since they are perfectly capable of being transferred from one position to another after the taking of the picture, and their habit of concealing themselves within the sheath of the tendons or of sliding in the tissues is well known. Many surgeons have missed a needle when it has been present in the direct area of operation. By taking views from different angles the relation to hard and soft parts can be determined with decided accuracy. Scott has proposed to take two pictures on different parts of the same plate; one end of the plate being covered with sheet lead while the other end is subjected to the rays; after which a second picture is taken on the other end of the sensitive plate without moving plate or tube. The varying angles of the object can thus be clinically determined or can be geometrically figured with accuracy (*American X-Ray Journal*, Vol. 1, No. 2, June, 1897, p. 41).

Two or three pictures taken at different angles, by tubes connected in series, will also give mathematical triangles for exact information.

Foreign bodies in the brain, esophagus and thoracic or abdominal cavities can often be thoroughly outlined, and by a series of rays even their depth may be located. With the fluoroscope also, a surgeon may during operation, especially in the esophagus, stomach or bronchi, bring to his help the immediate use of the rays and view and guide his instruments during manipulation.

A discouraging fact in the delineation of foreign bodies in the abdomen has been shown by Prof. Goodspeed in the case of the so-called "man ostrich" who had swallowed a large number of metal articles, belts, knives, etc., just previous to the application of the X-rays, yet only a darkened area was visible without any definite outline of the articles.

Drainage-tubes lost in the thoracic cavity are sometimes non-demonstrable, but after skilled adaptation of time of exposure are visible.

The placing of lead or other reference marks upon the surface to fix the location during skiagraphy is often of advantage in ascertaining distance from the surface. The process is also useful in locating the position of a collapsed lung in empyema and after thoracotomy, and the rapidity of expansion is not only interesting but an important addition to our knowledge.

BONE DISEASE.—The importance of the process in locating bone abscess, periosteal thickening, osseous growths, exostoses, etc., is undoubted and much information can be obtained, not only in regard to the shape, attachment, position, etc., but the question of treatment may be materially influenced.

JOINT DISEASE.—In joint disease, not only of minor articulations but in the larger joints, as the hip and knee, most important results are obtainable. Joint erosion of cartilage, destruction of the bone, etc., are as nearly visible to the eye as if the joint itself had been opened by the knife, and the question of excision, erasion, amputation or non-interference may be

facilitated. Whether a joint should be allowed to remain anchylosed, or whether it will be safe to attempt restoration of motion can be very accurately decided by this process as I have previously exhibited ("Trans. Amer. Surg. Assoc.," 1896).

In hip diseases the non-existence of the head and neck of the bone, and the position and condition of the upper extremity of the femur can be readily determined. Old dislocations and fractures of the neck of the femur can be also shown with advantage.

In caries of the vertebra not only can the diseased area be located, but the outlines of the resulting abscess can be determined by withdrawing the pus and filling the cavity with iodoform emulsion, which will outline the thickened and darkened sides of the abscess cavity. In hip abscesses the same maneuver can be practiced.

In anchylosis of the shoulder great assistance can be gained by the simple representation. Osseous projections, nodules, callosities, etc., interfering with the restoration of the joint motion are readily shown. The process is also helpful in periostitis, in bone thickening and in demonstrating the cause of metatarsalgia. Epiphyseal separation can also be differentiated from dislocation.

In knock-knee, bow-legs, deficiencies of bone, irregularity of condyle growths, etc., the use of the process is invaluable.

In talipes the shape of the tarsal bones may be outlined and the form of operation decided upon (Willard: "Trans. Amer. Ortho. Assoc.," 1896).

In the foot, deviations of all kinds from the normal standard are demonstrable with the greatest ease and accuracy; and the same may be said of the hand.

Gall and Bladder Stones.—Gall-stones, renal calculi, enteroliths, etc., while decidedly opaque to the X-rays are frequently not discoverable when *in situ*. Their detection will largely depend on the skill of the operator and his technique. We have many things yet to learn in regard to outlining these abnormal bodies, but a few months will probably bring extended knowledge. The difficulties in the case of gall-stones are due to the fact that when surrounded by the medium of bile they are obscured. In renal calculi also close relation of the vertebral bodies and ribs may conceal the concretion. The different varieties of concretions require special care as to the time of exposure, etc. In the bladder, the bones of the pelvis also obstruct the view; but by passing the rays in the direction of the axis of the pelvis this difficulty may be overcome, as has already been shown in several instances.

It is scarcely necessary for me to speak of the advantages of this process in regard to the more strictly medical conditions such as aneurysm, dislocation of the stomach, the condition of the viscera, subdiaphragmatic abscess, etc.; or of its use in ophthalmology. Its employment is steadily advancing in importance.

Dangers.—The dangers following the use of the X-rays may be due to two causes. To an idiosyncrasy or to susceptibility to the ray's action; or as seems more probable to me from experience, the necessity for skilled knowledge on the part of the operator. In a large number of these skiagraphs, made for me by Prof. Goodspeed, I have never had the slightest difficulty, and the explanation of this seems to me to lie largely in the fact that Prof. G. keeps the tube twelve to fifteen inches from the body; while in the cases that have been burned I have known the tube to be placed only three or four inches from the subject.

Undoubtedly an inflammation extending to a suppuration or slow gangrene may be caused by too close application of the rays. This action is doubtless a disturbance of or an interference with, the nutrition of the part caused not by bacilli, but by an action akin to that produced by the chemical rays of the sun. Unfortunately the patient does not, as a rule, detect any special electric sensations, and only occasionally is the sensation of heat realized. The separation of the eschar is not unlike that of a burn, yet the action produced by these rays is probably one *sui generis*. The safe plan, therefore, is to allow for at least twelve inches between the skin and the tube during exposure.

PRACTICAL DIFFICULTIES OF PSYCHO-THERAPEUTICS.

Presented to the Section on Materia Medica, Pharmacy and Therapeutics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1–4, 1897.

BY G. V. I. BROWN, D.D.S., M.D., C.M.
DULUTH, MINN.

Last year, in a paper before this Section, I gave somewhat in detail a description of the various states of disordination accountable for psychic phenomena, designated by a variety of terms, significant for the present purpose by the possibility of their utilization in the department of therapeutics, and with this end in view I also cited a number of cases, illustrating beneficial results obtained in widely different affections by fixation of attention and suggestive therapeutics. At this time, therefore, I desire to eliminate discussion of elements of doubt and skepticism, together with confusion of terms and difficulties of definition that lead away from the practical side of the subject, and deal as directly as possible with the difficulties some nine years' experience have shown me must often be overcome to successfully administer this treatment.

In view of the fact that more or less wonderful cures have been effected through mental influence, why is not psycho-therapeutics more generally used? The answer must be not because of inefficiency, for efficiency in many diseases has been repeatedly demonstrated, but by reason of certain difficulties encountered in its use in daily practice, in the ability to overcome which lies the possibility of successful results. These may in a general way be enumerated as follows: 1. The almost endless variety of individual peculiarities among patients subject to functional neuroses. 2. Instability of impressions. 3. Counter influence of autosuggestion. 4. Increase instead of decrease of the most characteristic symptom, self-consciousness. 5. Danger of masking the symptoms of some organic disease until it may have progressed beyond curative interference, especially of a surgical nature.

At least a large proportion of patients requiring psycho-therapeutic assistance for nervous troubles are naturally of neurotic tendency, and though perhaps beyond all reproach with regard to mental unsoundness, are nevertheless so erratic and prone to peculiar notions, so flighty in the transmission and nature of their thoughts, that the individual equation becomes indeed a very uncertain problem, and to such natures this treatment often seems at first to be particularly suitable. They will accept suggestions with unusual eagerness and for a time seem to be benefited in a

remarkable degree, deceiving both themselves and the operator, as their imaginations play upon the fancied improvement. Yet, by reason of the very lack in brain development, imperfection of the nervous elements, or whatever the original reason of deficiency may have been, there will be in like degree a want of stability evidenced in the inability to retain permanently and beneficially suggestions given, and just as love sits lightly upon those whose affections have been transferred from one person to another in the course of numerous flirtations until its steady flame may have been utterly destroyed, leaving only the emotional reflection, so these patients who usually have passed from doctor to doctor, from remedy to remedy, as the history of their cases indicate, have simply been supplied with a new emotion, and in a little while the whole structure of hopefulness will collapse with apparently good results lost in despondency or given over for some new thing that they are about to try.

Among these are commonly the so-called subjects that hypnotists and mesmeric healers write about. Just as they tend to extremes in other matters, so in hypnotism they pass more readily into the deeper states, exhibiting catalepsy, strange actions and other phenomena significant of profound condition; yet, frequently, without nearly so deeply rooted a hold on their minds as will result from a healthful suggestion given to patients of another class who are not at all in a hypnotic state and who would not easily be put into that condition. Such cases are well adapted for description in books and essays, but for the practitioner with whom they continue to abide are most discouraging. In the treatment of this class one must place but little reliance on outward and visible signs of improvement. The operator must impress the fact that the process of recovery will necessarily be a slow one, and have himself understand that long, patient and continuous effort will be necessary to stimulate the development and strengthening of the weakened nerve elements and to overcome the habit of disease.

Another class, frequently the outcome of characteristics before described at an early stage, have abnormal hopelessness about their condition; look with skepticism on what they call theories and with every appearance of desire to further beneficial influence, have an inherent degree of obstinacy, the common associate of nervous disorder which sets up an almost insurmountable state of mental opposition. Often they seem anxious to get well. They frequently make an earnest effort to co-operate and facilitate the mental influence, yet will betray in some unintentional way the fact that there is a clearly defined idea in their minds, an auto-suggestion, that you will not succeed, with a certain inward satisfaction to themselves, unreasonable as it may seem, when they believe you do not accomplish the intended result. When told to sleep they resist the influence, though the eyes be obediently closed, and at the moment when they ought to slumber will open their eyes, usually with a peculiar smile that at once tells the story and explains the cause of the difficulty, yet in all other ways such a patient may be and commonly is quite open to the effect of suggestion. Therefore, to manage successfully one must either continue some method of concentration until physical or mental weariness shall overcome the resistance, induce some influence sufficiently poweful to effect the same result, two sometimes difficult things to accomplish; or must, as I prefer to do, seem to put great etress on sleep or some other suggestion which is understood by the patient to be significant of hypnosis or of susceptibility to your influence, but which is really of minor importance; and while the attention is thus fixed upon resisting this particular effect the best possible state of susceptibility is opened for other suggestions, which being incidentally given will usually show a surprisingly happy result. For example, a neurathenic patient may require rest and yet resist the direct effort to induce sleep, but if told that sometimes patients can not be put to sleep by merely being told to sleep and that in such cases generally a drowsy feeling comes on at a later hour, almost invariably such a patient will leave you filled with the idea that you could exert no great influence over him, yet will tell you later that he felt drowsy and fell asleep at about the hour you had indicated.

In almost every instance by the use of some simple expedient such as giving instructions to take a series of twenty full regular inhalations and exhalations, resting for a short period each time the given number is reached, or, better still, by massage one can assist the direction of attention as desired and avoid mental opposition in a great measure. Self-consciousness is the active irritant in neurasthenia, to the hypochondriac and to sufferers from disorders of nerve and muscular action.

It seems to be a simple matter, as described by a host of writers, to divert the mind into other channels; yet, as a matter of fact, it frequently taxes one's ability to the utmost to do this so-called simple thing. Since the very effort at concentration of attention will usually take its most accutomed form, thus increasing consciousness of trouble and, as has frequently happened in my own experience, methods of assisting mental control, successful in other cases, have quite unexpectedly caused in a few moments violent outbursts of weeping on the part of the patient or a hysteric condition quite beyond control for the time being.

One such patient described her case recently by saying, "it makes me pity myself." Usualty a gentle stroking of the head without trying to make noticeable suggestion for a time will do more to restore the natural equilibrium temporarily upset than anything else, while extreme patience and infinite tact must do the rest later on.

The very nature of this treatment, tending as it does to give hopefulness and encouragement, successful as it should be in relieving pain, reducing temperature and giving relief by allaying symptoms by which nature expresses to us the warning of disease, if, in reality, the condition be one of organic nature, despite the claims of Bernheim and others that organic changes can be accomplished in a state of deep hypnosis, its reliability could hardly be compared to the surgeon's knife, and if an early operation would otherwise have been called for, then how serious might be a treatment which by masking symptoms has delayed instead of facilitating diagnosis.

In conclusion: All of the difficulties described might be summed up into one general head by saying that the chief disadvantage of psycho-therapeutics in general practice, aside from the consideration of the possibility of danger of weakening mental influence, causing too great a susceptibility and becoming a factor in crime, which does not lie within the province of this paper, is the practicability of individualizing each par-

ticular case, and just in proportion as cases may be studied and treated with due recognition of individual requirements, so will also be the record of successful results.

A NEW METHOD OF INVITING SLEEP.

Presented to the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY J. B. LEARNED, M.D.

NORTHAMPTON, MASS.

A violent collision with the frozen earth, the result of my first drive with a newly purchased horse in 1880, took me out of the busy life of the every day and night practitioners. For many years, instead of experimenting upon a willing and paying class of the laity, I was experimenting upon an unwilling and non-paying member of the profession. I did not sample all the remedies of the "Dispensatory," but I sampled many remedies outside the "Dispensatory." Hot water, cold water, inside and out; lack of food and surplus of food; gymnastics in my room and gymnastics with the woodsaw in the basement in the night time, brisk walking in the halls and around the square before retiring, friction direct and indirect, long deep inspirations with and without the numberless mental occupations, as varied as the physical; all these I tried faithfully. I also read about insomnia, its causes and remedies. It was during this blank interval, while I waited for power to return to me, that I raised the inquiry: Can we devise any means to turn off the belts from this little fragment of brain that insists on its automatic excursions day and night—this perpetual motion of a few cells of gray matter, that obstructs rest and prevents repair of the great whole? Can we by counteraction set up a motion elsewhere after retiring, that will bring an equilibrium of arterial and vital current so that sleep will come to our relief?

During this frame of mind, I experimented and practiced with muscle and will in many and divers ways after retiring. I had the whole bed, length and breadth. I directed various contractions and relaxations, and finally reached the conclusion that a systematized and well ordered method of muscular and mental activity would soon bring the conditions required—a sense of fatigue that precedes and invites sleep. A recumbent position furnished the best opportunity. Once asleep the point is gained. Who has not been dull and almost asleep before retiring, but wide awake immediately after disrobing and experiencing the gentle shock of the fresh sheets and changed posture?

Is it necessary to recite here the advantages of proper conditions of atmosphere and temperature of the sleeping room? I will assume not, but will say that open windows at all seasons, heat never turned on in my sleeping room and moderate bed-covering has come to be a necessity with me. This is my method:

Lying upon my back, with or without pillow, I reach for the foot-board and head-board at the same time. This brings into use many muscles that have not been on active duty during the day. I now raise the head half an inch, enough to realize that it has more weight than I first supposed. At the same time, by will power, I direct the respiratory process to a slower and deeper movement. I order about eight inspirations deep and full, in place of sixteen per minute. Every inspiration is recorded, counted. Thus the process begins of inviting the forces into new channels and relieving the old. At the expiration of ten to twenty inspirations the head has become so heavy you want to drop it. This you do. Immediately the right foot is raised a half inch from its resting place. The reach for the foot-board and head-board continues; the count of slow deep inspirations continues; the sense of fatigue of muscles engaged in lifting the foot and holding up the coverings continues. Here, as before, the foot, like the head, has become a dead weight and must go down. Now, immediately the left foot is elevated with all the previous conditions remaining. The reach downward and upward of foot and head is kept up, so far as power will permit without exhaustion. This foot remains up for the same length of time, the respirations being the clockwork. It goes down. You may now relieve the reach for foot- and head-board and use the muscle to elevate the trunk, holding it by resting upon heels and head and shoulders. This elevation of the central part of the body and rest upon the two extremes will call for change as all the former positions have done. By the same clock you have the time marked off and the body is again flat upon the back waiting new orders. Turn now to the right side reaching for head- and foot-board as before, and elevate the head half an inch by use of the lateral muscles of the neck and chest. At the expiration of the time the head goes down and the foot goes up by use of the lateral muscles. Change now to the left side and repeat what has just been accomplished by the muscles of the opposite side. You have now assumed eight positions and used a large majority of the whole number of muscles in carrying out your dictations. If you have not fallen asleep before this cycle is completed you may begin again and go over the same round. If you have already gone to sleep you will not be required to.

Other methods of procedures would answer the same purpose, undoubtedly, with the respirations guarded and uniformity observed, mind and muscle constantly occupied. There should be no periods of rest, no vacations. Thus fatigue comes inevitably and sleep follows. I know of no means so ready, so much at command, any time and anywhere, so inexpensive and so absolutely certain to induce sleep as this routine of mental and muscular exercise. It involves a principle. Following it, sleep appears to be inevitable. There is but one drawback; it requires some exertion, continuous mental and muscular exertion. The indolent will find it unattractive.

Some conditions of heart or nerve center may altogether contraindicate this method. The length of time employed in the several positions will vary according to the make-up of the individual. No one rule can apply to the robust and the exhausted as to the time spent in a given exercise, only that which measures the power of endurance. It is the sense of general weariness following persistent effort that brings the desired result.

DISCUSSION.

Dr. ECCLES—I have been something of a victim to insomnia myself, have tried all sorts of plans and have studied, as far as I could, the causes of the trouble. Confining myself to my own experiences, I have observed that fear is the cause of insomnia with me. No matter how fatigued I may be on retiring, if the fear that I will have a sleepless night takes possession of my mind, I will not be able to sleep. Is long as I have the fear nothing will do me any good, and as soon as I

get rid of this fear I can get to sleep. Anything that will divert the mind will accomplish this.

Dr. WOODBURY—Any method which will take the place of reliance upon narcotic drugs in the treatment of insomnia should be heartily welcomed. In some cases a small amount of food, such as a glass of hot milk or a cup of broth, or even heavier food does all that could be wished. Dr. John L. Atlee, once President of the ASSOCIATION, told me that he used to suffer greatly from insomnia and had tried all the remedies that had been suggested to him; finally he found that by keeping a supply of water crackers in his bureau drawer, and when he could not sleep, getting out of bed and eating a couple of crackers while walking about the room would always enable him to get a good sleep when he went back to bed.

Dr. J. V. SHOEMAKER—There are times when not only the method which has been suggested by the reader of this paper will fail, but also when every other agent will fail, including the use of food and mental influences. It depends on the mental constitution of the patient what drugs or what influences may produce sleep. It has been my preference for several years to teach the use of other means in the place of hypnotics as a method of inducing sleep, on account of the great abuse of these drugs at the present day. At the present time the literature of medicine is filled full of new hypnotic agents which are recommended for the doctor to use. As I said before, these gymnastics will fail in some cases and succeed in others. I remember a case of a gentleman who had tried everything without success, including the use of food or hot milk, electricity and massage, mechanical movements and the modern hypnotic agents, but all failed to relieve his insomnia. I traveled with this gentleman, very much against my will, as he prowled around during the day complaining of his inability to sleep at night. We happened one evening to go into the great garden of Strauss in Vienna, and as the strains of music reached our ears I noticed for the first time an expression of tranquility on the face of my patient. That night he had a good refreshing slumber for the first time for years. What I want to illustrate by this case is the fact that different cases require different remedies. This was a patient who failed to receive benefit from massage, electricity, modern narcotic remedies, but in whom music accomplished the desired result. I believe that out of the multitude of narcotic remedies offered at the present day, there is not one which can be relied upon to positively succeed. One will succeed in one case, another in another. In ordinary cases taking a little food, in others applying mustard plaster, or as the old ladies used to say, "to tie onions to the wrists and feet would bring it about." So in regard to the suggestion made in the paper, I would say that in many cases it would succeed, but there are others where other agents or methods must be used.

Dr. ANDERSON of New York—The method calls to my mind Dr. Benwill's method of inducing anesthesia by rapid breathing, and it occurs to me that the result may be attributed to the accumulation of carbonic acid in the blood.

Dr. LEARNED—The method I advocate is not simply a means of producing muscular fatigue, because I have often been very tired and still suffered with insomnia. As regards the carbonic acid explanation, I would say that I only reduce the respirations to the normal rate during sleep, and there is no such accumulation of carbonic acid in the blood as has been suggested.

A NATIONAL MEDICAL SCHOOL.

Presented in the Section on State Medicine at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY ALBERT S. ASHMEAD, M.D.
NEW YORK.

A wolf in sheep's clothing could not be more dangerous to the shepherd's fold than the enemy which confronts the general body of practitioners today. Accumulation of wealth in a few men's hands and the drifting of these men to the cities, is one of the causes which render the endowment of medical schools, the founding of hospitals, easier than ever. The medcal schools will obtain from rich men money to build Smith clinics, Jones maternities, or Robinson hospitals or operating wards. In the expenditure of such funds, the medical man who obtains the superintendence ceases to be independent; he becomes, as a rule, the retainer, if not the sycophant of the rich man.

In times of yore a student starting the study of medicine appeared at college, after having read with his preceptor, a general practitioner in the country, for from one to three years. Today preceptorships have ceased to exist, otherwise than nominally. The student only starts his studies after coming to the college, and usually drifts at once into a specialty. With a compulsory four years' course in our medical schools has come the demand for academic degrees before matriculation. Such men after graduation are not likely to settle in the villages and be satisfied with general practice; the majority of them will wish to settle in the cities and try specialties. The country practitioner will go entirely out of existence, or if he does survive, he will fall into contempt as a failure as an educated man. Hospitalism and specialism are enemies of general practitioner work.

Should an immoral or otherwise unworthy man apply to any of our schools for matriculation, is there one of these schools (in the absence of direct charges) that will refuse to matriculate and graduate him? Not one. I know a school, one of the most eminent of the schools, which had among its third course students (it was a college requiring three years attendance) a man who had committed an abortion, a fact which was reported to the president of its alumni association. When this student came up for graduation he was conditioned on two branches; when he came up again he was again conditioned. Then he went to a rival school, took out a course of tickets, was put on the *ad eundem* list, and soon afterward graduated. This man is today practicing in New York City, and holds a position on the staff of a prominent hospital.

Rivalry will increase with the needless multiplication of our medical schools; only rivalry here will do quite the contrary of what competition does in other branches. It will simply be detrimental, as the above instance shows.

Is there a legislature in any State of the Union which will refuse to charter a new medical school if the application is backed up by reputable medical men and money? Not one! They do not ask whether the supply keeps step with the demand.

We have too many medical schools. The student who fails to graduate from the high standard school has only to fall to the next level to obtain its degree.

The salvation of the general practitioners of America is in the formation of a National standard, or a National school, and the taking away from the State the chartering of the medical schools. Let us have one medical school which will graduate general practitioners for the country. It is the country practitioner who needs protection against city specialists.

Let us revive the method to require for each student the old-fashioned preceptor, who stands sponsor for the fi'ness and moral character of the applicant for immatriculation, who when the candidate applies for graduation will certify that his fitness and character are still the same.

There were, though not for medicine, such preceptors in Old Rome; every patrician was a lawyer, and received in his study the young man who wanted advice. This study was a kind of law school, and a school of morality and of general practice of life. It was his duty to

> Clienti promere jura
> Majores audire, minori dicere per quae,
> Crescere res possit, minui damnosa cupido.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION BY CARL H. VON KLEIN, A.M., M.D.

(*Continued from page 591.*)

XIII.—GERMAN MEDICINE.

Leibnitz; University of Halle; Thomasius, Wolff, Franke; System of Medicine by Hoffmann and Stahl; Boerhaave; Haller; Gaub; Vienna School: van Swieten, de Haën, Störck, Stoll; Neurologic pathology, Unzer; Humor pathologists Ch. L. Hofmann and Kämpf; Classification of diseases; Study of the ancients; System of J. Brown; Realization of Chemistry and physicians; Special pathology; Remedies; Medical practitioners.

When the German churches announced the eighteenth century, a warm, quickening spring sun shone in Hanover and Halle, newly vivifying the German sciences. *Leibnitz* there created German philosophy. He taught the Germans to think independently and to develop their sciences philosophically. Here were professors of the young University, who, as leaders in the movement, restored the mother tongue to scholars, made the ideas of the great philosophy popular, aroused the flat crude Protestantism and revolutionized German medicine. Leibnitz unified the inexhaustable depths of mathematic, philosophic, physical and historic knowledge, with a strong creative power and a depth of spirit through which he received the greastest influence upon his time. And the more because he was no learned Philistine, but a man of the world who understood how to lift science out of the student's dingy room and introduce it to higher stations, even into the salons of the emperor and empress, and to foreign nations. By numerous monographs and an immense correspondence he brought his weight to bear especially upon the leaders of the nation, breaking precedents on all sides. The point of his philosophy lay in the atomic doctrine which maintains the existence of simple indivisible substances from which all combinations are made up, a doctrine which is important also for medicine. The University of Halle, through the acquisition of several eminent, and some persecuted professors, had become a brilliant center for the development of German culture. The intolerant Leipzig theologians had accused the jurist, *Christian Thomasius* of heresy, on account of his candid teachings, and had driven him from Leipzig, whereupon he, with several hundred students, withdrew to Halle which in consequence of his great reputation was raised to a University (1694). At that time German scholars wrote in Latin, because the mother tongue, enriched with foreign words, appeared to them too rude and unyielding to intelligently express scientific matters. While they forced German thoughts into the dead languages, they hindered every national development. Indeed Leibnitz declared the German tongue completely ripe as a learned language, but he himself wrote almost entirely in Latin and French. On the other hand the intellectual and facile Thomasius, one of the brightest men of his time, who gave the death-blow to prosecutions for witchcraft, earned the great merit of being the first to give lectures in the German tongue in a German university (Leipzig, 1687) This threw the wigs of his colleagues into violent commotion, but greatly increased the number of his students. He contended in the press as the first journalist. At his side lectured the philosopher *Christian Wolff*, who had been driven from Halle by the orthodox party, and later had been reinstated by Frederick the Great. He collected Leibnitz's ideas into a system and as a clear conservative teacher, systematic and methodic, he smoothed the way in all the sciences and immensely expedited their promulgation in Germany. He frequently wrote in German. It is owing to the stimulus of these three men that, from that time on, the German language was more widely cultivated and triumphantly installed beside the Latin tongue, and was more frequently used in scientific works, although it could not entirely supersede Latin and, with scholars of the second rank, to the end of the century remained stiff and even crude. Nevertheless, this glorious achievement was the first step toward placing the whole nation in an entirely new relation toward the scholars. The three faculties in Halle had, in the persecuted theologian *August Hermann Franke*, who had been driven out of Leipzig, a worthy contemporary of Spener; these two restored intellectual freedom and the religious spirit to the dead letter of the torpid Lutherism. It was not their fault that this afterward worked so much harm as degenerated pietism, and indeed reacted upon medicine. The clerical life of which this university was the scientific heart, could not remain without some inflence upon the development of one young student in Halle who, together with Sebastian Bach, gave a magnificent impetus to German music through his grand oratorios, viz., Händel, the composer of the Messiah. Halle had also within its walls the two most celebrated physicians of Germany, *Friedrich Hoffmann* and *Georg Ernst Stahl*.

In the restless ferment which manifested itself in all sciences at the beginning of the century, German medicine did not remain behind, but went astray, however, when instead of seeking to enlarge its separate branches by exact investigations, it sought its advancement in the building up of systems. Theories stood everywhere in the foreground, and book-knowledge was supreme. They contended with beautitully worded repetitions, compiled the opinions of the authorities, and thereby overlooked the simple facts. The eighteenth century swarmed with systems into which the whole of medicine was fitted by force; one encroached upon the other and sought to crowd out its rival. The life of each varied according to the intellectual capacity and the social station of the author; now one disappeared when scarcely born and again another exercised its dominion for a decade and continually won new adherents. Nothing could be more welcome to the lazy practitioner than that he should be relieved of the inconvenient business of thinking. He had now nothing more to do at the sick-bed than to determine the chief character of the disease from the most prominent symptoms, whereupon his system placed in his hands the appropriate remedies, in black and white.

The two leading systems, one of which found the greatest acceptance in Germany for over a half century, were originated by Hoffmann and Stahl. These men were of the same age (born 1660); the former a physician in Halberstadt, the latter court physician in Weimar, when at the foundation of the University in Halle they were appointed professors in medicine. *Hoffmann*, who had at first studied mathematics, read anatomy, physics, chemistry, surgery and practical medicine. He was an amiable man whose reputation

was widely extended not only as a writer but as a practical physician, insomuch that the famous Boerhaave, to whom the king of Prussia had applied for consultation, referred him to Hoffmann. For forty-eight years he taught in Halle, where he had founded the Medical Faculty and was the recipient of the greatest applause. He was at different times, for three years, body-physician to King Frederick I., but his residence in Berlin had made him disgusted with his colleagues. He was highly honored up to the time of his death (1742), and was the pride of the University. Hoffmann possessed a masterly eloquence, which brought professors and noblemen to his lectures, and he wrote in a clear, smooth, almost popular style. Although he highly prized the classic writers, he avoided all unnecessary learned citations in his numerous writings but, on the other hand, sought to give them a greater charm by introducing glimpses of other sciences. From his assertions, which he often premised without proof, he knew how to draw conclusions which followed one another with great clearness and in mathematic sequence, and which were all the more convincing and received all the more applause because they concurred with the philosophic ideas of his friends, Leibnitz and Newton. Nevertheless, he desired that all demonstrations in medicine should be either anatomic or physical, and considered that perfect proofs were possible only through the application of mechanics and hydraulics; he regarded the opening of cadavers as indispensable and made many meteorologic notes in order to elucidate the causes of disease. Yet his most important physiologic principle was an hypothesis. In all nature he assumed the existence of an æther which is also the most essential material in the human body, is of the most refined volatility and causes the movements of the organs. In the brain, especially, the æther is separated out of the blood and thence flows through the nerves into all parts of the body. The latter was to him a machine which works "according to laws of the higher mechanics, which are yet to be discovered." Life depends upon the continued movement of the heart and of the arteries, and the circulation of the blood is the origin of the warmth, nourishment and growth, and of all actions. Hoffmann considered every disease as a fault in this movement; if it was too strong there arose cramps, if too week, there followed atony; in the category of cramps, he placed fevers, inflammations, catarrh and diarrhea. From atony he educed all chronic diseases and also dizziness and plethora. The last named he considered as one of the most frequent causes of disease, aside from the air (of swamps and coal gas), the moon and the planets. Every fever arose from a cramp which drove the blood from the outer parts to the inner and in a similar manner caused inflammation, when the cramps prevent the blood from going to certain parts and forcibly drive it to other parts. One of the most frequent inflammations is that of the stomach, which is often mistaken for something else. His therapeutics were based upon the eradication of the cramp and atony. Few remedies but strong ones, was his motto, and he believed himself able to contend against all diseases with ten or twelve remedies. The acute cases he treated with cooling applications as Hippocrates, toward whom he also assumed a critical attitude; in chronic cases, wine, camphor and, contrary to Stahl, quinin and iron were his favorite medicines. Mineral waters, which he assiduously investigated, warm baths and dietetic treatment he prized very highly, but on the other hand, he was exceedingly cautious with opium. His name has been preserved to our day by the so-called Hoffmann drops, the elix. viscerale.

Stahl taught in Halle, whither he had been called by his friend Hoffmann. His branches were botany, physiology, pathology, dietetics, pharmacology and medical institutions. The two were colleagues for twenty-two years, until the increasing popularity of Hoffmann caused an estrangement between them and Stahl, in 1716, went to Berlin as court-physician, where he died in 1734. He was the deepest thinker among the German physicians of his time, but was gloomy, inclined to melancholy and superstition, and a pietist. He possessed boundless pride, which led him to say: "By the grace of God I know what I write." He could brook no contradiction and could not tolerate the successes of his colleague, whom he often flatly opposed. Like Hoffmann, he hated learned citations, but did not approach him either as an orator or a writer. His style was incorrect and prolix; his ideas often obscure and scarcely intelligible. Himself an eminent chemist, insomuch that he is regarded, together with Boerhaave, as the founder of scientific chemistry, yet considered this science as well as physics and higher anatomy as absolutely useless in medicine. On the contrary, he attached the greatest importance to facts, and indeed to the every-day, not the rare, fact which should lie at the bottom of theories. To him the most important thing was to discover the principle and the final cause upon which all forces and movements depend. His fundamental doctrine was that the body, as such, possesses no power whatever to move, but is controlled absolutely by the soul. It directs every movement and impels every process of the body, although it acts without consciousness and without consideration. Rejecting all mechanical ideas, he made the soul the principle of medicine, and with this conception he carried out his system with inflexible consistency. Leibnitz opposed him, saying that the soul can not govern the body independent of mechanical laws. Disease is a movement of the soul, while it, always watchful for the maintenance of the body, counteracts the causes of disease; movements arise from which the disease is composed. According to Stahl and also to Hoffmann, excessive blood is one of the most frequent causes of disease. It is best relieved by bloodletting, as menstruation and hemorrhoids prove, which latter is a wholesome regulation of nature and a remedy for the plethora of the abdomen. Fever was also considered a movement of the soul, which is designed to render unwholesome the feverish irritation which lays hold of the body and to separate it from the body. Even cold is a movement excited to expel the causes of disease, hence fever is often even beneficial to the body. Stagnation and congestion were distinguished from one another. The latter drives the blood so violently into the smallest veins that it stagnates because it can not move freely and easily. While, by this obstruction, nature is driven to even more intense vital movements and inflammation arises. Stahl declared that the vital movements of nature are sufficient for the cure of disease, and therefore considered that the all too great activity of the physician was injurious; he should be the servant of Nature, observe her duty, and then, when he sees the vital movement regular and powerful he should not destroy these wholesome agencies. One must follow the beck of Nature in fevers, which she, for the most part, cures by excretion, therefore

the suppression of it should be avoided; hence quinin is injurious. In acute cases he recommended bloodletting and salts, and was an enemy to all powerful remedies (iron, opium and stimulants). In chronic cases he preferred laxatives, aloes, rhubarb and jalap. Like Hoffmann, he sold and extolled several secret remedies, especially balsam pills.

The third who exercised a considerable influence upon German medicine in the first half of the century was the most renowned teacher and the most celebrated physician in Europe, *Hermann Boerhaave* of Leyden (1668–1738). At first designed for the church, he pursued philosophic studies and much mathematics, which at that time was considered the basis of medicine. He maintained himself by giving instruction in these branches. Afterward he was made doctor of philosophy, and through his study of the works of Spinoza he drew upon himself the hatred of all orthodox people, so that the path to the pulpit was cut off from him by the doubt concerning his faith, and he gave up theology and turned to medicine, which he studied almost without a teacher. In 1701 he became lecturer on theoretic medicine in Leyden, later assumed the professorship of botany and chemistry, and in 1741 became director of the Hospital. There he was one of the first to offer clinical instruction, which was at that time still lacking in German universities. His eminent talent as a teacher, his vivid eloquence, the clearness of his lectures, which, contrary to the custom of that time, he gave entirely free, as well as the practical usefulness of his doctrines, soon gained for him a European reputation. Numberless pupils flocked to him from all countries, whom he knew how to inspire with his enchanting personality and his tireless activity for science. No lecture room was large enough to hold them all. So great was the pride of every one in being his pupil, so heartfelt the love of his fellow-citizens, that they illuminated the city when he recovered from an illness. His fame as a physician was unexampled. The whole world consulted him; Peter the Great remained a whole night in a carriage in front of Boerhaave's house in order to speak to him in the morning before the beginning of the lectures; a Chinese mandarin wrote "to Boerhaave in Europe." In spite of all deifying, he retained a rare modesty until his death. Indifferent to all external display, always in the most ordinary clothing, he lived as the simplest citizen and filled his leisure hours with the playing of the lute. "For thirty years he was the medical oracle of the European courts, the idol of his hearers, the object of veneration of the whole literary world, and in spite of his munificence to the poor he left his only daughter more than two million guilders." Haller said of him: "Some indeed, though few, attained to his learning; no one to his godlike, benevolent spirit that wished well to his enemies and those who envied him, and would not belittle even those who opposed him daily." Boerhaave did not arrange his doctrines into a system, but in Aphorisms and Institutions, which were received with extraordinary applause. The simple observation of nature stood uppermost with him, hence his veneration for Hippocrates and Sydenham, though he did not join many of his contemporaries in their one-sided enthusiasm for antiquity. Without prejudice, he took the best wherever he found it, unmindful as to whether or not it coincided with the theory. So, as a selector he created a medicine which, without rigorous consistency, had indeed no important ideas, but proved its value by the sick-bed. He rejected one-sided mechanical elucidation and mathematic demonstration in practical medicine. With his great services in the development of chemistry, it is to be noted that he conceded to it no dominant place, but only that of an auxiliary science to medicine. He first undertook the chemic analysis of urine. Diseases attack either the solid or the liquid parts, which latter soon become acid, alkali or viscous, and the simplest frequently occurring disease is the obstruction of the channels which contain fluids. He regarded inflammation as the stagnation of the red blood in the smallest arteries. Fever, in which he had already employed measurements of temperature, he thought a quick action of the heart with increased resistance of the capillaries, and at the same time the effort of nature to ward off death. Chronic diseases arise in part from defects in the fluid parts, and he distinguished seven kinds of dyscrasia: A sour acidity from which arise diseases of the stomach, acid eructations, sour milk, constipation, pustules, sores, etc., and should be treated with a vegetable diet, exercise, and diluent and absorbent remedies. Then a bitter and an aromatic fat-acidity, an oily and a salt acidity, an alkaline and a glutinous condition. Under these seven heads he classified chronic diseases, of which scurvy was the one he preferred to treat, and he applied to it the specified remedy, which was usually very complex, but sometimes was simple.

The mechanico-dynamic system of Hoffmann, the psychic system of Stahl, and Boerhaave's doctrines, contended in Germany for the honor of the day. The great mass blindly followed these men, to whom a genuine piety was common; it thought only what they thought and was divided into just so many sects. Hoffmann had a large following at home and abroad, especially as his system agreed with Boerhaave's views. The crowd walked by the side of these two men. The error lay in the training of mathematic practitioners who philosophized so subtly concerning the human body that nothing was left but a mechanical and hydraulic machine. Formerly one had to be an astrologer if he would be a physician; now everything in physiology is reckoned algebraically. This mathematic sect was the proudest, for they believed that by their method medicine was given absolute mathematic certainty. The later expression of Schlözer applied to them: "No nation in the world has been snatched from barbarism through mathematics." Stahl's doctrines, which aside from Hoffmann found a great opponent in Haller, were not understood by the majority because too deeply grounded for their time, and they were enthusiastically proclaimed almost wholly by limited intellects and pietistic physicians.

Such was the condition of theoretic medicine when, in the middle of the eighteenth century, the dominance passed to Boerhaave's greatest pupil, Albert von Haller, who, with his doctrine of irritability, gave a new direction to medicine. Boerhaave had the rare fortune to find a whole line of excellent pupils who, throughout their entire lives, adhered to him with the greatest devotion, and although some of them were far more illustrious than he himself, throughout many years they brought out new editions of his works with comments. Of his best pupils Haller and Gaub followed rather his dynamic and theoretic direction, van Swieten and de Haën the practical and the humoral-pathologic.

(To be continued.)

The Medical Colleges of the United States.

In accordance with the custom of the JOURNAL, to make one number each year largely an "educational number," the Editor recently addressed a circular letter to the Secretary or Dean of the Medical Colleges throughout the United States, requesting them to furnish the JOURNAL with a brief announcement of their college, covering length of term, fees, hospital and clinic advantages, etc.

The responses as presented contain much information, to the student and practitioner alike, concerning the trend of medical education throughout the United States.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

The Association of American Medical Colleges requires for all members that candidates for matriculation will be allowed admission, and subsequent graduation, subject to the conditions prescribed by Article III of the Constitution of the Association:

ARTICLE III.

SECTION 1.—Each college holding membership in this Association shall require of each student, before admission to its course of study, an examination the minimum of which shall be as follows:

1. In English, a composition on some subject of general interest. This composition must be written by the student at the time of the examination, and should contain at least 200 words. It should be criticised in relation to thought, construction, punctuation, spelling and handwriting.

2. In Arithmetic, such questions as will show a thorough knowledge of common and decimal fractions, compound numbers and ratio and proportion.

3. In Algebra, such questions as will bring out the student's knowledge of the fundamental operations, factoring and simple quadratic equations.

4. In Physics, such questions as will discover the student's understanding of the elements of mechanics, hydrostatics, hydraulics, optics and acoustics.

5. In Latin, an examination upon such elementary work as the student may offer, showing a familiarity usually attained by one year of study; for example, the reading of the first fifteen chapters of Cæsar's Commentaries, and the translation into Latin of easy English sentences involving the same vocabulary.

SEC. 2.—In place of this examination, or any part of it, colleges, members of this Association, are at liberty to recognize the official certificates of reputable literary and scientific colleges, academies, high schools and normal schools, and also the medical student's certificate issued by any State examining board covering the work of the foregoing entrance examination.

SEC. 3.—Colleges, members of this Association, may allow students who fail in one or more branches in this entrance examination the privilege of entering the first year course, but such students shall not be allowed to begin the second course until the entrance requirements are satisfied.

SEC. 4.—Colleges, members of this Association, are free to honor official credentials issued by medical colleges of equal requirements, except in the branches of study embraced in the last year of their own curriculum.

SEC. 5.—Candidates for the degree of Doctor of Medicine in the year 1899 and thereafter shall have attended at least four courses of medical instruction, each course of at least six months duration, no two courses of which shall have been in the same calendar year.

SEC. 6.—Colleges, members of this Association, are free to give to students who have met the entrance requirements of the Association additional credit for time on the four years' course as follows: 1. To students having the A.B., B.S., or equivalent degree from reputable literary colleges, one year of time. 2. To graduates and students of colleges, of homeopathic or eclectic medicine, as many years as they attended those colleges, provided they have met the previous requirements of the Association and that they pass an examination in materia medica and therapeutics. 3. To graduates of reputable colleges of dentistry, pharmacy and veterinary medicine, one year of time.

SEC. 7.—Colleges, members of this Association, may confer the degree of Doctor of Medicine during the year 1898 upon students who have attended three courses of six months' duration each. Each course shall have been in a separate calendar year.

Fifty-eight colleges have maintained membership by paying their dues for this current year.

1. University of California. 2. University of Louisville. 3. Rush Medical College. 4. Cincinnati College of Medicine and Surgery. 5. Medical Department University of Georgetown. 6. Medical College of Indiana. 7. Medical Department Columbian University. 8. Gross Medical College. 9. Syracuse University. 10. University of Denver. 11. Jefferson Medical College. 12. Creighton Medical College. 13. Kentucky School of Medicine. 14. Iowa College of Physicians and Surgeons; Drake University. 15. St. Louis College of Physicians and Surgeons. 16. College of Medicine, Los Angeles, Cal. 17. Ohio Medical University. 18. Michigan College of Medicine and Surgery. 19. Sioux City College of Medicine. 20. American Missionary Medical College.[1] 21. College of Physicians and Surgeons, Boston. 22. Hospital College of Medicine, Louisville. 23. Detroit College of Medicine. 24. Louisville Medical College. 25. Central College of Physicians and Surgeons, Indianapolis. 26. College of Physicians and Surgeons, Baltimore. 27. Western Pennsylvania Medical College. 28. Medico-Chirurgical College, Philadelphia. 29. Niagara University, Buffalo. 30. Wisconsin College of Physicians and Surgeons. 31. University of Maryland, Baltimore. 32. Baltimore Medical College. 33. University of Iowa. 34. Womar's Medical College, Philadelphia. 35. Arkansas Industrial University. 36. Howard University, Washington, D. C. 37. Starling Medical College, Columbus. 38. University of Minnesota. 39. College of Physicians and Surgeons, Cleveland. 40. University of Buffalo. 41. Toledo Medical College. 42. College of Physicians and Surgeons, University of Illinois. 43. University of Colorado. 44. National University, Washington, D. C. 45. Keokuk Medical College, Iowa. 46. College of Physicians and Surgeons, Hamlin University, Minnesota. 47. Western Reserve University. 48. University Medical College, Kansas City. 49. University of Michigan. 50. Tuft's College, Medical School, Boston.[1] 51. Johns Hopkins University. 52. Woman's Medical College, Northwestern University. 53. Fort Wayne College of Medicine. 54. University of Virginia. 55. University of Oregon. 56. Baltimore University. 57. Willamette University. 58. Barnes Medical College, St. Louis. J. W. HOLLAND, M.D., Philadelphia, President; BAYARD HOLMES, M.D., 104 East Fortieth Street, Chicago, Secretary; Dudley S. Reynolds, M.D., Louisville, Chairman Judicial Council.

[See also page 643.]

BIRMINGHAM MEDICAL COLLEGE.

BIRMINGHAM, ALA.

This College requires for graduation, a three years' graded course of six months each.

The fee for the first year is $100; for the second year $100, and for the third year $125.

The students have the privilege of attending free the clinics of the Hillman Hospital, Hospital of the Tennessee Coal, Iron and Railroad Co. Several private infirmaries are also institutions to which the students have access. There is given in the College infirmary, a clinic every day (excepting Sunday) from 12 to 1 o'clock, in which special instruction is given, without extra cost, in gynecology and abdominal surgery, diseases of the ear, eye, throat and nose, skin, nervous system and children; also orthopedic and genito urinary surgery.

George A. Hogan, M.D., Secretary.

MEDICAL COLLEGE OF ALABAMA.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF ALABAMA.
MOBILE, ALA.

The thirty-second session begins Oct. 11, 1897, and continues six calendar months. Every facility is offered for thorough medical instruction with a large and commodious college building; splendidly equipped laboratories. Ample clinical facilities. Spacious lecture rooms and magnificent museum. Delightful winter climate.

For further information or catalogue address George A. Ketchum, M.D., Dean, 7 N. Conception St.

[1] Application for membership.

MEDICAL DEPARTMENT, ARKANSAS INDUSTRIAL UNIVERSITY.

LITTLE ROCK, ARK.

The ninteenth annual course of lectures begins in this institution on Oct. 18, 1897.

Graded course. Four courses of lectures not less than six months each required. Clinical facilities and anatomic material ample. J. A. Dibrell, M.D., Dean.

COLLEGE OF PHYSICIANS AND SURGEONS OF SAN FRANCISCO.

SAN FRANCISCO, CAL.

This college held its first session during 1896-97, and has a full corps of professors, adjuncts, lecturers, demonstrators and assistants. It is located in the center of the most populous district of San Francisco, where clinical material is abundant. There are separate medical and dental courses, both graded, the former occupying four years, but the course is so arranged that a student matriculating therefor may take both courses at the same time and graduate with the two degrees of M.D., D.D.S. Daily clinics are held and the students have entrance to several hospitals. The fee for matriculation is $5; for each preliminary course, $25; for each regular course, $75; for the final examination, $25.

The preliminary course begins in October and ends at Christmas. The regular course begins in January and will continue six months. Advanced standing is given under definite regulations and examination when necessary.

For further information address Winslow Anderson, M.D., Dean, 603 Sutter St.

COOPER MEDICAL COLLEGE.

SAN FRANCISCO, CAL.

The college has handsome and commodious buildings, with fine laboratories and elaborate apparatus for illustrating lectures. An educational qualification or examination is required before admission. Four courses of six months each and one course of three months are necessary to complete the curriculum. Short term begins February 1; long, or regular term, June 1. Graduation exercises takes place in December. The objections to the summer course, which obtain on the Atlantic border, are unknown here. The long dry summer permits the carrying on of dissection and study to much greater advantage than in the winter, either here or in other climates. Excellent clinical facilities are offered. A fee of $130 is charged for each of these courses, $5 for matriculation, $10 for the demonstrator's ticket and $40 for graduation. Henry Gibbons, Jr., M.D., Dean; W. Fitch Cheney, M.D., Secretary.

UNIVERSITY OF CALIFORNIA, MEDICAL DEPARTMENT.

SAN FRANCISCO, CAL.

The course of instruction in the Medical Department of the University of California extends over four years. The course is graded, anatomy, physiology, histology, chemistry and materia medica being completed at the end of the second year. To be eligible for admission the applicant must present credentials equivalent to a diploma from a recognized high school or pass the examinations for admission to the academic branches of the university. Besides the regular clinical work at the City and County Hospitals the faculty conducts a free dispensary clinic in a thickly populated district where material is abundant. During the year ending April 30, 1897, 4,248 new cases were treated at the dispensary. The sessions of the college begin September 1 and continue eight calendar months. R. A. McLean, M.D., Dean.

GROSS MEDICAL COLLEGE.

DENVER, COLO.

The college is a member of the Association of American Medical Colleges and is specially stringent concerning the requirements for admission and graduation. The term begins Sept. 7, 1897, and continues seven months. The course of study extends over four years. The fees are: Matriculation fee, $5; general lecture fee, $75, except for the senior year when the fee is $30. There is no examination fee. Sons and daughters of ministers and physicians are admitted on the payment of one-half of the general lecture fee. There are laboratory fees for material and to cover breakage. Especial advantages are given in laboratory and clinic work. Owing to the recent abandonment of the State School in Denver the larger portion of the active teachers of this faculty have associated themselves with the Gross Medical College. Robert Levy, M.D., Secretary, California Building.

UNIVERSITY OF COLORADO, MEDICAL DEPARTMENT.

BOULDER, COLO.

This college completed its fourteenth annual session June 4, 1897. For the session of 1897 and 1898 the college will conduct but the first two years of a four years' graded course. For the work of the first two years the university is exceptionally well equipped in faculty, room and laboratories. The course is arranged to harmonize with the best scientific work of the day. The two years are largely devoted to laboratory work in chemistry, physiology, anatomy, histology, materia medica, pharmacology, pathology and bacteriology. The next session begins Sept. 7, 1897, and will continue nine months. The tuition fee is $35 per year. This is payable on entering the school. There are no other fees. Further information will be given by addressing L. M. Griffin, M.D., Dean.

UNIVERSITY OF DENVER, MEDICAL DEPARTMENT.

DENVER, COLO.

The Medical Department of the University of Denver will open Oct. 5, 1897, and continue seven months. The course of instruction embraces four separate terms of seven months each. Fees: Matriculation, paid but once, $5; registration, paid annually after first registration, $1; tuition, annually payable in advance, $75; chemical laboratory, $10; dissecting material at cost, not to exceed $5 per part; graduation fee, $25.

Denver, with a population of 150,000, offers excellent clinical advantages for instruction at both dispensary and hospital. Students in impaired health can and do attend the Medical Department of the University of Denver and regain their health in this great health resort. For catalogue address the Secretary, E. R. Axtell, M.D., Barth Block.

THE COLUMBIAN UNIVERSITY, MEDICAL DEPARTMENT.

WASHINGTON, D. C.

The seventy-sixth session of the Medical Department of the Columbian University will begin on Sept. 29, 1897. During the coming year the clinical facilities of the college will be increased by opening a hospital, which is very conveniently located within a few doors of the lecture building. This hospital, when started, will be under the exclusive control of the medical faculty. As heretofore, all possible clinical facilities will be given to the students, and great stress will be laid on the practical work in connection with all of the different branches. E. A. DeSchweinitz, M.D., Dean.

HOWARD UNIVERSITY, MEDICAL DEPARTMENT.

WASHINGTON, D. C.

This college is open to all students who are qualified.

The thirtieth annual session will begin Oct. 1, 1897, and continue seven months.

Tuition is $60, with a small fee for laboratory expenses.

Instruction is given by didactic and clinical lectures, recitations and practical exercises.

Howard University offers special facilities to students. Situated at Washington, D. C., with many libraries and museums open at all times to the student; with the Army Medical Museum, which is the finest in the world, easy of access; with the many hospitals of the city offering ample clinical facilities, and especially the Freedmen's Hospital, located on the grounds of the University.

Howard University can point with pride to the fact that she was among the first to adopt a four years graded course.

Prof. T. B. Hood, Dean; Prof. F. J. Shadd, Secretary and Treasurer.

MEDICAL DEPARTMENT, GEORGETOWN UNIVERSITY.

WASHINGTON, D. C.

This school offers unusual facilities for medical education. By an act of Congress, the various libraries and museums are open to students, and the Faculty frequently make use of these collections for demonstrations. The forty eighth session opens October 4 and will continue seven and one-half months. Instruction is given by lectures, recitations, clinics and laboratory demonstrations. The laboratories are well equipped with the most modern apparatus.

Clinical facilities are ample. The Georgetown University Hospital, now under construction, will soon add greatly to the opportunities for bedside instruction. The lectures are now given during the day, as students are required to give their entire time to their studies. Good board can be obtained at from $20 to $25 per month. Fees: Matriculation, payable but once, $5; tuition including laboratories, $105 per annum.

G. L. Magruder, M.D., Dean.

ATLANTA MEDICAL COLLEGE.

ATLANTA, GA.

This is one of the oldest schools in the South. To keep abreast with the demand for higher medical education, this school has within the last five years spent upward of fifteen thousand dollars in equipping chemic, pathologic and bacteriologic laboratories, courses in which are compulsory and a requisite to graduation.

Atlanta, with over a hundred thousand inhabitants, affords an abundance of clinical material. The wards of the City Hospital are open to students and the members of the Faculty are upon the visiting staff. The course consists of three full terms of six months each, taken in separate years. The fees are $100 for each course. The Faculty employs an able corps of instructors, demonstrators and quiz-masters to whom the student pays no extra fee.

MEDICAL DEPARTMENT, UNIVERSITY OF GEORGIA.

AUGUSTA, GA.

The sixty-sixth annual session commences Oct. 1, 1897, and terminates April 1, 1898.

During the three years' graded course, six months in each year, students are thoroughly instructed in all departments of medical science. Facilities for instruction at bedside in practice of medicine, surgery, ophthalmology, gynecology and obstetrics, are unsurpassed by any medical college in America. Three large hospitals are under the exclusive control of faculty of this college, and fully utilized for practical instruction of students. Each member of the graduating class is accorded the benefit of two weeks' residence in the hospitals.

Fees: Matriculation, $5; general course of instruction, $75; practical anatomy, $10; laboratory fees (histology and pathology), $10; diploma, $30. Announcement giving full particulars of the course, furnished on application. Address Eugene Foster, M.D., Dean.

SOUTHERN MEDICAL COLLEGE.

ATLANTA, GA.

The nineteenth annual session will open October 1. The course is six months and three graded courses, in separate years, are required of every applicant for graduation. Each course includes systematic, didactic and numerous clinical lectures, besides the usual laboratory and dissecting room instruction. The faculty consists of fifteen regular professors and thirteen assistants. The clinical advantages are unsurpassed. In addition to an inexhaustible out door clinic, the Grady Hospital, with its 150 beds, is available to advanced students, who have the privilege of attending without charge medical, surgical and gynecologic clinics in the hospital amphitheater, and under the supervision of the visiting physicians and surgeons, a large proportion of whom are members of the faculty. They have almost daily access to the hospital wards.

The fees, including demonstrator and laboratory fees, are $100 per session.

James B. Baird, M.D., Dean.

CHICAGO CLINICAL SCHOOL.

CHICAGO, ILL.

The Chicago Clinical School, formerly called the West Chicago Post-Graduate School and Polyclinic, located at 819 West Harrison Street, has just issued "Bulletin No. 6," giving general information regarding the special courses for the coming winter. The directors of the School have had in view the accommodation of post-graduate students and have made wise and extensive improvements in their school. The operating rooms are fitted with the most modern apparatus for surgical, gynecologic and ophthalmologic work. The hospital building in which the school is located has a capacity of 125 beds, and no expense has been spared to make the hospital perfect in modern conveniences, both for the requirements of the patient and of the physician and surgeon.

CHICAGO COLLEGE OF DENTAL SURGERY.

DENTAL DEPARTMENT OF LAKE FOREST UNIVERSITY.

CHICAGO, ILL.

The Annual Winter Course of Instruction will begin about October 1, and end about April 1.

Three full winter courses of lectures are required before graduation. Graduates of pharmaceutic and undergraduates of medical colleges in good standing, and graduates of reputable veterinary colleges are admitted to the second year course.

Freshman Year 1897-98: Matriculation fee, $5; general ticket, $100; histologic laboratory ticket, $5; dissection fee (one part) $10. Junior Year, 1897-98: Matriculation fee, $5; general ticket, $100. Senior Year, 1897-98: Matriculation fee, $5: general ticket, $100.

A fee of $5 must be deposited to cover chemicals and breakage in the chemical laboratory.

The building occupied by the Chicago College of Dental Surgery is, in all its appointments, one of the most perfect and complete of its kind. Letters of inquiry should be addressed to Dr. Truman W. Brophy, Dean, 126 State Street.

CHICAGO EYE, EAR, NOSE AND THROAT COLLEGE.

CHICAGO, ILL.

The Chicago Eye, Ear, Nose and Throat College has been founded with the idea of giving post-graduate instruction and of thoroughly fitting its students for practicing the above named branches of special medicine. The College is located in the Trude Building, 67 Wabash Avenue. The central location and easy accessibility from all parts of the city insures a large amount of clinical material. The college equipment is the best money can buy, and the facilities for teaching the above named branches are unsurpassed. The faculty is made up of men who have had wide experience in this line of work and are alive to the needs of men who wish to practice it. For further information and catalogue write to J. R. Hoffman, M.D., Secretary.

CHICAGO POLICLINIC AND HOSPITAL.

CHICAGO, ILL.

The Chicago Policlinic has fallen into line with the other institutions in their endeavor to meet the good times that are coming. They have arranged the work of the institution to meet the requirements of a great variety of medical and surgical interests in their various departments. The Policlinic is in a position to offer what is a great essential in a clinical school—exceptional opportunities for individual handling of cases under expert instruction and unusually extensive facilities for observing after-treatment and the most approved forms of dressing in their own hospital. They are enabled to do this by carrying on a very large amount of hospital and dispensary work, treating, on an average 150 cases a day. Students may enter on a course at any time since the work is so arranged. F. Henrotin, M.D., Secretary, 174 E. Chicago Avenue.

CHICAGO SCHOOL OF GYNECOLOGY AND ABDOMINAL SURGERY.

CHICAGO, ILL.

This is a post-graduate school for special and practical instruction in gynecology, diseases of the abdomen and abdominal surgery. All teaching is clinical.

Monthly courses are given the year round. Rectal, genito-urinary and gastro intestinal diseases will be taught. Practitioners may enter at any time.

"Touch" courses and clinics for physical diagnosis will be conducted from 9 A.M. to 2 P.M. The afternoons will be devoted to operative clinics at the varying hospitals with which the faculty are associated.

Arrangements may be made at the School for operative and practical work on the cadaver.

The fees are from $35 to $75, according to courses chosen.

The small classes allow individual advantages in gynecologic examinations and observations at operations. Byron Robinson, M.D., 100 State Street, Secretary.

THE COLLEGE OF PHYSICIANS AND SURGEONS.

SCHOOL OF MEDICINE, UNIVERSITY OF ILLINOIS.

CHICAGO, ILL.

The fall term of the College of Physicians and Surgeons of Chicago (Medical Department of the University of Illinois) begins September 21. The introductory address will be delivered by Prof. Adolph Gehrmann. The term ends April 19. The fees are $110. Women are admitted on an equality with men.

There are six large fully equipped laboratories. The West Side Hospital adjoining and connected with the college building affords abundant clinical facilities, with daily clinics in the college amphitheater and outdoor obstetric clinics.

Six annual scholarships of the value $100 each are awarded to students in the college. Four years graded course.

W. E. Quine, M.D., Dean, D. A. K. Steele, M.D., Actuary; Wm. Allen Pusey, M.D., Secretary, 103 State Street.

HARVEY MEDICAL COLLEGE.

CHICAGO, ILL.

The course of study is graded to extend over a period of four years; is given by fifty professors; illustrated by lectures, laboratory work and quizzes, between the hours of seven and ten o'clock every week-day evening. Special attention is given to

anatomy. Individual outfits furnished in all laboratories. Every student is obliged to perform operations on the cadaver.

The actual daily practice in medicine and surgery, under the immediate supervision of the physicians in charge of the dispensary and out-practice, is required of every senior. Attendance upon twelve obstetric cases is a requisite to graduation.

Fees are low, and including all laboratory extras no year exceeds $100. By advance payment of fees a deduction of $15 is made. For further information address Frances Dickinson, M.D., Secretary, 167 S. Clark Street.

JENNER MEDICAL COLLEGE.

CHICAGO, ILL.

Jenner Medical College is a co-educational school where an education in medical science may be gained by evening study. It is recognized by the State Board of Health and is now in its fifth year. Its course of four terms, of more than nine months each—September 7 to June 18—makes the total number of hours put in by its students in excess of the requirements of the Association of American Medical Colleges. Lectures commence at 7 and continue to 10 o'clock, six evenings each week. The facilities for laboratory and clinical work at Jenner are up to date. In connection with the college is conducted the Jenner Hospital, where bedside instruction is provided for the students, 385 Washington Boulevard.

The fees are: Matriculation (paid but once) $5; laboratories, $5; general fee, $75 each year. E. Perry Rice, M.D., Secretary.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL. (CHICAGO MEDICAL COLLEGE.)

CHICAGO, ILL.

This school was the first in this country to enforce a standard of preliminary education; to adopt longer annual courses of instruction; and to grade the curriculum.

Four years of study are required for graduation. Applicants for admission must present diploma from colleges of arts, science, or acredited high schools, or pass the examination required for entrance to the College of Liberal Arts of Northwestern University.

A feature unique to this school is the grading of clinical instruction and the maintenance of small clinics, so that students can obtain individual instruction.

Instruction is given by lectures, recitations, conferences, laboratory and clinical methods. Elective courses are afforded.

The laboratory building contains finely planned and equipped laboratories.

The faculty consists of thirty-nine professors and forty-three instructors and demonstrators.

College opens Oct. 5, 1897. Commencement is June 16, 1898. The fees are: Matriculation $5; annual $125. N. S. Davis, M.D., Dean.

NORTHWESTERN UNIVERSITY WOMAN'S MEDICAL SCHOOL.

CHICAGO, ILL.

Examination for admission begins Sept. 27, 1897; first semester Oct. 7, 1897.

The course is four years, graded.

A matriculation fee of $5 is required; an annual fee of $75, and a final examination fee of $30.

An addition to the college buildings in course of construction will double the laboratory and clinical facilities.

College clinics will be given in dermatology by Professor Zeisler; in pediatrics by Professor Abt; in gynecology by Professor Mergler; in obstetrics by Professor Root; in orthopedic surgery by Professor Ridlon; in ophthalmology and otology by Professor Fiske; in surgery by Professors Graham and Van Hook; in laryngology by Professor Rhodes; in general medicine by Professors Danforth and Edwards; and in neurology by Professor Brower. Hospital clinics and bedside instruction will be given at Cook County Hospital and also clinics at the Woman's Hospital, the Wesley Hospital, the Detention Hospital, and at the Mary Thompson Hospital for Women and Children.

POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL OF CHICAGO.

CHICAGO, ILL.

This college is now entering upon its ninth year. The facilities for post-graduate teaching are thorough and complete in all departments, including hospital, clinical and laboratory advantages, which are not excelled anywhere. Teaching is exclusively clinical, with abundant material and small classes and large working faculty. It is located in the medical center of the city. With a continuous course throughout the year, practitioners can matriculate at any time with equal advantage. There is a large hospital in the main building and extensive outside hospital connections. The laboratories are unsurpassed in equipment. Systematic courses are given the practitioner under the direct supervision of Prof. Theo. A. Edwin Klebs (late of the University of Zurich and widely known through the researches which resulted in the discovery of the diphtheria bacillus).

An illustrated bulletin will be furnished upon application to Franklin H. Martin, M.D., Secretary, 2400 Dearborn street.

RUSH MEDICAL COLLEGE.

MEDICAL DEPARTMENT LAKE FOREST UNIVERSITY.

CHICAGO, ILL.

The curriculum of this school of medicine requires a proper preliminary education and four years of study in college, devoted to laboratory, didactic and clinical instruction, to recitations and to manual training in the use of instruments and appliances.

Instruction is given in two capacious, well lighted edifices. The new building contains five large laboratories, in which are conducted the practical laboratory courses in anatomy, physiology and histology, chemistry, materia medica, pathology and bacteriology.

The old building is devoted to instruction by clinics, didactic lectures, and by numerous important practical courses in manual training in manipulations and in the use of the instruments employed in medicine, surgery, obstetrics, and the specialties.

For further information and for announcements apply to the College Clerk, or to the Secretary, J. H. Etheridge, M.D., 31 Washington St.

THE CENTRAL COLLEGE OF PHYSICIANS AND SURGEONS.

INDIANAPOLIS, IND.

The nineteenth annual session of The Central College of Physicians and Surgeons will open Wednesday, Sept. 15, 1897, and continue for six full months, on the four years system. The College Free Dispensary, located in the college building, together with the City Hospital, St. Vincent's Infirmary and the City Dispensary, afford an abundance of clinical material. Classes are so divided as to enable the instructors to give personal instruction to each student. Each senior attends at least four cases of obstetrics under the direction of the professor of that department. The laboratories are generously equipped. Professors' and laboratory fees complete, $60. Joseph Eastman, M.D., LL.D., President; S. E. Earp, B.Sc., M.D., Secretary.

FORT WAYNE COLLEGE OF MEDICINE.

FORT WAYNE, IND.

This college has issued its "Nineteenth Annual Announcement," and has a four years' graded course of six months each year. General lecture fee, including laboratory, dissecting and hospital tickets, each year $70.

This college was the second in this country to require a four years' graded course before conferring the degree of Doctor of Medicine.

Clinics are held in the St. Joseph and Hope Hospitals, also once a week in the State Institute for Feeble Minded Youth, and daily in the College Dispensary. Session of 1897-98 opens Sept. 14, 1897.

The faculty consists of twenty-two professors, with a number of lecturers, demonstrators and clinical assistants.

The clinical advantages are good, with sufficient material for demonstration. The college has always maintained a high standard of requirements.

Address all communications to C. B. Stemen, M.D., Dean 25 Broadway; or W. W. Barnett, M.D., Secretary, 25 West Wayne St.

MEDICAL COLLEGE OF INDIANA.

DEPARTMENT OF MEDICINE OF THE UNIVERSITY OF INDIANAPOLIS.

INDIANAPOLIS, IND.

This college was organized in 1869 and will open its twenty-eighth session on Sept. 28, 1897. It offers a four years' graded course, the classes being rigidly separated; women admitted on the same terms as men; clinical facilities first-class; free dispensary in the college building, maintained and operated by the faculty; new building erected especially for the institution and adapted to the requirements of advanced medical education; new clinic rooms, modern in every respect, at both hospitals.

The faculty numbers twenty, with sixteen lecturers, assist-

ants and demonstrators. For all information address Joseph W. Marsee, M.D., Dean, 206½ E. New York St.

IOWA COLLEGE OF PHYSICIANS AND SURGEONS.

MEDICAL DEPARTMENT OF DRAKE UNIVERSITY.

DES MOINES, IOWA.

This college has a four years' graded course, principally laboratory work; the last two years clinical work.

The school is located in the largest city in Iowa and affords corresponding clinical advantages.

The regular fall and winter session begins Sept. 21, 1897, and continues twenty-six weeks. For announcement or information, address O. D. Benson, M.D., Secretary, Sixth and Locust Sts.

KEOKUK MEDICAL COLLEGE.

KEOKUK, IOWA.

Keokuk Medical College was founded in 1890 by a corps of experienced medical teachers; graduated its first class in 1891 and has graduated large classes each subsequent year. It has now an active alumni of over three hundred.

The Faculty is composed of twenty professors and assistants. The requirements for admission and graduation are of high grade. The course is graded and extends over a period of four separate calendar years. The college building, in all its equipment, is modern. St. Joseph's Hospital is controlled by the College, for all clinical purposes; abundant clinics in all departments. Session opens September 14. Oliver D. Walker, M.D., Secretary.

MEDICAL DEPARTMENT OF THE STATE UNIVERSITY OF IOWA.

IOWA CITY, IOWA.

The Medical Department of the State University of Iowa, at Iowa City, opens its twenty-eighth session on September 15, and continues it until March 30. The new University Hospital, for which an appropriation was made by the last General Assembly, and which is managed by this Department, is rapidly nearing completion. It embodies the latest and best ideas in hospital architecture and in structure and equipment will be without a superior in the West. Clinic patients are received from all parts of Iowa as well as from many of the Northwestern States. The didactic and laboratory instruction is not made subordinate to the clinical. The large and well furnished laboratories afford special advantages for practical work. The annual fee, which includes all university charges, is $65.

COLLEGE OF PHYSICIANS AND SURGEONS (MEDICAL DEPARTMENT OF KANSAS CITY UNIVERSITY).

KANSAS CITY, KANS.

The fourth annual session of the College of Physicians and Surgeons will open Sept. 15, 1897, and continue for six months. The school is well equipped for teaching modern medicine and surgery with first class hospital connections where all surgical operations can be seen; also an abundance of medical cases of all the various diseases can be seen daily. The faculty is composed of practical men, familiar with the needs of medical students. For catalogue or other information, address J. W. May, M.D., Dean, or E. M. Hetherington, M.D., Secretary, Kansas City, Mo.

KANSAS MEDICAL COLLEGE.

TOPEKA, KANS.

Session began Sept. 14, 1897, and continues twenty-six weeks. It is a three years' school.

The trustees and faculty own the college building and ten beautiful lots adjoining. Aside from the college clinic and free dispensary, students are required to attend the clinics at Christ's Hospital, State Insane Asylum and Salvation Army Hospital. There are two other hospitals in the city to which students have access, and two private hospitals, making the clinical facilities equal to any college in the country. Kansas has now an excellent anatomic law. Tuition in full for the first year is $65; second year, $65; third year, $35. Board and room rent from $3.50 to $5 per week. J. E. Minney, A.M., M.D., Dean; R. S. Magee, M.D., Secretary.

HOSPITAL COLLEGE OF MEDICINE.

MEDICAL DEPARTMENT OF CENTRAL UNIVERSITY.

LOUISVILLE, KY.

The twenty-fourth annual session of the Hospital College of Medicine will begin Jan. 3, 1897, and continue six months. The curriculum is graded and attendance upon four full courses is required.

College graduates in arts or science who have pursued certain biologic studies; graduates in dentistry, pharmacy and veterinary surgery are admitted to advanced standing. Practical instruction, including laboratory work in chemistry, histology, osteology, pathology, bacteriology and anatomy, with bedside instruction in medicine, surgery, gynecology, obstetrics and diseases of the eye, ear, nose and throat, is a part of the regular course. Hospital and clinic advantages are unsurpassed. For catalogue and further information address P. Richard Taylor, M.D., Dean, 229 West Chestnut Street.

KENTUCKY SCHOOL OF MEDICINE.

LOUISVILLE, KY.

This College is midway between the North and the South and holds its sessions from January to June inclusive. It began in 1817 as the Medical Department of Transylvania University, and took its present name in 1850. With a progressive and experienced faculty of thirty teachers, ample and thoroughly equipped laboratories and a large modern hospital of its own, recently erected adjoining the college, this school is offering facilities for practical and thorough instruction unsurpassed in this country. Advanced students, in sections of about six, are drilled every day in actual work in the indoor and outdoor departments of the College Hospital. The requirements for entrance, graduation, etc., conform to those of the Association of American Medical Colleges. The fees are: Matriculation, $5; tuition, $75; laboratories, each $10; examination each year, $10. For catalogue address Samuel E. Woody, M.D., Dean.

MEDICAL DEPARTMENT, TULANE UNIVERSITY OF LOUISIANA.

NEW ORLEANS, LA.

This institution, founded in 1834 as the Medical College of Louisiana, became in 1884 the Medical Department of the Tulane University of Louisiana. It is the oldest college in the Southwest. The next annual course of instruction will begin Oct. 14, 1897. It possesses well-equipped laboratories for chemistry, pharmacy, practical anatomy, operative surgery, microscopic anatomy, pathology and bacteriology, and working rooms for practical physiology and gross pathologic anatomy. These admirable laboratories, now added to the unrivaled practical advantages for clinical, anatomic and pathologic studies given by the Charity Hospital, enables the Medical Department to provide its students with unsurpassed advantages for their medical education. The Faculty solicits the special attention not only of students, but also of graduates of other colleges, to the unequaled clinical and anatomic advantages. The fees amount to a total of $465 for a three years' course. For other information address S. E. Chaille, M.D., Dean.

NEW ORLEANS UNIVERSITY MEDICAL COLLEGE.

NEW ORLEANS, LA.

New Orleans University Medical College is located near the center of the city. The course of instruction covers four years of six months each. Tuition is $30 per session, which entitles to attendance on all lectures, daily clinics and hospital privileges—the hospital wards being in the second story of the main building. It is the only school in the far South open to all irrespective of race or sex.

The mild winter season with its long period of daily sunshine makes New Orleans a delightful climate for students subject to catarrhal or pulmonary troubles. Session opened September 14.

BOWDOIN COLLEGE, MEDICAL DEPARTMENT.

BRUNSWICK, MAINE.

Its seventy-eighth annual course will begin Thursday, Jan. 6, 1898, and continue until the following June 26.

Its course of lectures includes anatomy, physiology, chemistry, pathology and practice, surgery, materia medica, obstetrics, diseases of women, diseases of children, medical jurisprudence, mental diseases; surgical and medical clinic on Thursdays and Saturdays of each week, also clinical lectures and instruction in diseases of eye and ear; good laboratory facilities in chemistry, histology and bacteriology; a well equipped anatomic cabinet.

Matriculation fee, $5; lecture fee, $78 each for first and second courses, $50 for third course; diploma fee, $25. Dissection material furnished at cost. Price of board, including room and incidentals, from $4 to $5 weekly. For full information send for catalogue to Alfred Mitchell, M.D., Secretary.

BALTIMORE MEDICAL COLLEGE.

BALTIMORE, MD.

The preliminary fall course begins September 1; regular winter course October 1.

Excellent teaching facilities; magnificent new college buildings; superb lecture halls; large and completely equipped laboratories; capacious hospitals and dispensary; lying-in department for teaching clinical obstetrics; large clinics.

Send for catalogue, and address David Streett, M.D., Dean, N. E. cor. Madison Street and Linden Avenue.

BALTIMORE UNIVERSITY, SCHOOL OF MEDICINE.

BALTIMORE, MD.

The next session will open October 1, and continue six months. The second session will open about April 15 and continue until August 1. The fees for the first session will be $70 and the fees for the second $45. We have ample hospital facilities and large clinics in both the indoor and out door department dispensary. The instruction consists in didactic lectures, clinical teaching and bedside instruction, bringing the student in close contact with all the different phases of disease, the recognition and treatment, and unexcelled opportunities for witnessing surgical operations and manipulation upon patients. The Baltimore University Hospital is owned by the Faculty of this School, and in close proximity. Ample opportunity for witnessing obstetric cases is constantly afforded, and it is run as a temperance institution. Our college is a member of the Association of American Medical Colleges. H. H. Biedler, M.D., Dean.

COLLEGE OF PHYSICIANS AND SURGEONS OF BALTIMORE.

BALTIMORE, MD.

The twenty-fifth annual session opens Oct. 1, 1897. The length of the term is six months. Having adopted the four years' graded curriculum in 1895, in advancce of the mandate of the national Association of Medical Colleges, the school is now well organized on this plan. The cost of attendance upon the lecture course is $100. The diploma fee is $30.

The instruction consists of clinical and didactic lectures, recitations, ward classes in medicine, histology, pathology, bacteriology and physiology, and anatomic demonstrations. The college and hospital facilities comprise the college building proper; the Baltimore City Hospital; the Hospital for the Colored Race; the Maternité Hospital; the Out door Department of Maternité Hospital; the City Hospital Dispensary and Bay View Asylum.

The Faculty have added a Pasteur department, for the treatment of rabies.

THE JOHNS HOPKINS MEDICAL SCHOOL.

BALTIMORE, MD.

The required period of study is four years. Only those are admitted as candidates for the degree who possess a degree in arts or science from an approved college and have had at least a year's collegiate training, with much laboratory work, and have acquaintance with Latin and a reading knowledge of French and German. In the methods of instruction especial emphasis is laid upon practical work in the laboratories and in the dispensary and wards of the hospital. Abundant clinical material is afforded by the Johns Hopkins Hospital and Dispensary. Especially advantageous for thorough clinical training are the arrangements by which the students engage in practical work in the Dispensary, and throughout the fourth year serve as clinical clerks and surgical dressers in the wards of the Hospital. The charge for tuition is $200 per annum.

Inquiries may be addressed to the Registrar of the Johns Hopkins Medical School.

UNIVERSITY OF MARYLAND, FACULTY OF PHYSIC.

BALTIMORE, MD.

The ninety-first annual session of the University of Maryland, School of Medicine, will begin October 1, and end April 20, 1898. It offers a four years' graded course, methods of instruction eminently practical and splendid laboratory equipment. The magnificent new University Hospital, which is under the exclusive control of the Faculty, offers unsurpassed clinical advantages. The advanced classes are divided into small sections, so that each student receives individual instruction in all the practical branches of medicine. The Lying in Hospital, which has probably the largest clinic in the South, offers unusual facilities for the teaching of obstetrics. For catalogue and other information address C. W. Mitchell, M.D., Dean, 1021 Cathedral Street.

WOMAN'S MEDICAL COLLEGE OF BALTIMORE.

BALTIMORE, MD.

The Woman's Medical College of Baltimore was founded in 1882. Session begins October 1 and ends June 1. Four years' attendance is required for graduation. There are thirty-four instructors and assistants. The clinical advantages include the Hospital of the Good Samaritan, the Maternité, the Presbyterian Eye, Ear and Throat Hospital, Bay View Hospital and a large dispensary service. Instruction is given in psychiatry, embryology, laboratory work in histology, embryology, pathology, bacteriology, chemistry and pharmacy. Fees for a full course, $100, with reduction of 25 per cent. to missionaries. Five dollars is required for breakage and $30 for final examinations. The rules of the Association of American Medical Colleges are strictly enf rced. For terms and catalogue, address Eugene F. Cordell, M.D., Secretary, 1100 McCulloh Street.

COLLEGE OF PHYSICIANS AND SURGEONS.

BOSTON, MASS.

The College is now in its eighteenth year. It was the first regular college in New England to admit both men and women to equal privileges. A four years' graded course is required, under the rules and requirements of the Association of American Medical Colleges, including didactic lectures, recitations, conferences, clinical teachings, and practical work in laboratories and dissecting room.

The regular session begins in September, and ends in June.

The lecture fee is $100 per year, except the first year, which is $75, (complete in advance, $300).

The College is located near the Boston City Hospital, and possesses other good clinical facilities, in which it gives each student experience and special training in general practice. The faculty comprises thirty-two professors, aided by special instructors and assistants. Augustus P. Clarke, A.M., M.D., Dean; George F. Shurtleff, M.D., Registrar.

TUFT'S COLLEGE MEDICAL SCHOOL.

BOSTON, MASS.

It is the only regular co-educational medical college in New England where diplomas are recognized by the State Medical Society.

It has four years' graded course of eight months each. Entrance examinations (with a few exceptions) are required.

It has a new building, just finished, and thoroughly equipped laboratories, lecture rooms, amphitheater and dissecting rooms, separate study rooms for both sexes, dispensary in the building, and is near City and St. Elizabeth Hospitals for clinic facilities.

Next term commences Wednesday, Sept. 29, 1897. For further particulars, address C. P. Thayer, M.D., Secretary, 74 Boylston Street.

DETROIT COLLEGE OF MEDICINE.

DEPARTMENT OF MEDICINE.

DETROIT, MICH.

The Medical Department of this institution requires for admission a diploma from a reputable high school, or its equivalent. The course of study covers a period of four years of seven full months each. The first two years are devoted to the preliminary and fundamental branches, the last two to the general and technical study of the practice of medicine and surgery. The recitation system of teaching is largely employed. Laboratory instruction including also pathology, bacteriology, physiology and operative surgery, is made a special feature of the course. Practical obstetric work is required of senior students. Harper and St. Mary's Hospitals, attendance at which is compulsory, furnish an abundance of material of all kinds for clinical instruction in all branches. The total fees average about $100 per year. The next session opens Sept. 29, 1897. H. O. Walker, M.D., Secretary.

MICHIGAN COLLEGE OF MEDICINE AND SURGERY, DETROIT.

DETROIT, MICH.

The regular session opens Sept. 21, 1897, and continues six months. The period of study has been increased to a carefully graded course of four years.

The fees are within reach of all, averaging $75 per year. Students have access, free of charge, to the Detroit Emergency Hospital; Free Dispensary; Detroit Eye and Ear Infirmary; clinic for obstetrics, which provides senior students two or more clinical cases; clinic for venereal diseases; gynecology, skin, nose and throat, nervous system, children, thorax, surgery and clincal medicine.

An ambulance service is mantained exclusively in connection with the hospital, thus furnishing an opportunity both to witness the primary treatment of injuries and to perfect themselves in the details of dressing, nursing and after-treatment. All accident and ambulance patients are dressed before the class.

On an average, 15,000 patients are treated annually in the Free Dispensary.

UNIVERSITY OF MICHIGAN.

DEPARTMENT OF MEDICINE AND SURGERY.

ANN ARBOR, MICH.

The course of medical instruction in this institution has, since 1890, consisted of four years of nine months each. The course is graded; the first two years being devoted to the fundamental branches of chemistry, physics, anatomy, physiology and hygiene by means of didactic lectures, quizzes and laboratory work; the remaining two years to special branches and clinical instruction.

One of the chief features of the instruction received here is the thorough practical knowledge which the student obtains in the various required laboratory courses.

The State hospitals, which were established here mainly to afford facilities for clinical instruction, furnish abundant material for acquiring practical experience in the observation and treatment of medical and surgical cases, and junior and senior students have unusual freedom of access to the wards. V. C. Vaughan, M.D., Dean.

HAMLINE UNIVERSITY,

COLLEGE OF PHYSICIANS AND SURGEONS.

MINNEAPOLIS, MINN.

This is the oldest institution of medical learning in Minnesota. The course is four years; the sessions of eight and a half months each. Matriculation fee is $5. Annual tuition for first three years, $65; for the fourth year $35; graduate course $50. No extra charges for laboratories or special courses. The faculty is made up of the ablest men selected from the profession of both Minneapolis and St. Paul. The college building is situated in the immediate neighborhood of the three chief hospitals of Minneapolis, and the hospitals of both cities are available for clinical instruction, giving ample material in all lines. The course is very thorough and rigid; the standard high; the moral tone especially good, and an unusual spirit of fellowship between the faculty and students exists. All laboratories have been refitted with the best apparatus necessitated by rapid growth, the enrollment having increased 70 per cent the past year. Leo M. Crafts, M.D., Dean.

UNIVERSITY OF MINNESOTA; COLLEGE OF MEDICINE AND SURGERY.

MINNEAPOLIS, MINN.

The Medical Department opens September 21. The course covers a period of four years of study, each year representing eight months in actual residence.

The studies are graded throughout the four years, with careful reference to the relations which the subjects naturally bear to each other. The work of the first two years deals with the laboratory branches; that of the third and fourth years include the principles and practice of medicine and surgery with their allied specialties and the application of scientific or laboratory methods to clinical experience. The hospitals of Minneapolis and St. Paul are open to the students *without fee*, and their clinical facilities are unexcelled. More than twenty-five hospital positions are open to graduates of this college through competitive examination. Level fees: First and second years, $100 each; third and fourth years, $75 each; graduation fee, $10.

For further information address Parks Ritchie, M.D., Dean.

BARNES MEDICAL COLLEGE.

ST. LOUIS, MO.

The Barnes Medical College of St. Louis presents strong claims for the confidence and patronage of the profession. Its new building is one of the most commodious and expensive structures devoted to medical teaching. Its laboratories of histology, physiology, chemistry, pathology, bacteriology and anatomy are among the largest and best equipped of the kind in the world. Its faculty is composed of carefully selected instructors, men of ability and of unblemished reputation, who are widely and favorably known.

Matriculates for the last session numbered 511. A four years' graded course of instruction is required. The tuition is exceedingly moderate, and special terms are given to sons of physicians and ministers. The college is centrally located and clinical advantages are excellent.

BEAUMONT HOSPITAL MEDICAL COLLEGE.

ST. LOUIS, MO.

The regular session begins September 21 and continues for six months. The course extends over three years and is graded. Laboratory exercises are obligatory in chemistry, physiology, uranalysis, histology, pathologic anatomy and bacteriology.

Clinics are regularly held at the City Hospital, the Alexian Brothers' Hospital, St. Mary's Infirmary and the Missouri Pacific Hospital. Other public institutions with which teachers in this school are connected also offer clinical advantages. Prominence is given to laboratory work and to clinical teaching.

Fees (payable in advance): Matriculation fee (paid but once), $5; fee for the junior year, $50; fee for the intermediate year, $70; fee for the senior year, $80; laboratory fee (yearly), $10. No additional charge will be made for hospital tickets, anatomic material or diploma. F. J. Lutz, M.D., Dean.

ENSWORTH MEDICAL COLLEGE AND HOSPITAL.

ST. JOSEPH, MO.

The Ensworth Medical College and Hospital is a partially endowed institution. The college department is well fitted for medical instruction; is up with the times as respects its curriculum, and possesses suitable rooms for lectures and laboratory work. Three terms of six months each constitutes its course of instruction, which is given by lectures and recitations. It seeks and desires students well equipped for the study of medicine by a liberal education. On Sept. 13, 1897, it entered on its twenty-first session. The hospital can accommodate 250 patients. It is well supplied with all necessary means. It is under the charge and special direction of a committee of the faculty. Tuition fees, $50; laboratory fee, $5; examination for degree, $25. Thomas H. Doyle, M.D., President; Hiram Christopher, A.M., M.D., Dean.

KANSAS CITY MEDICAL COLLEGE.

KANSAS CITY, MO.

The Kansas City Medical College, established in 1869, enters upon its twenty ninth annual session with the coming year. A three-years' graded course is established, each school year beginning September 14 and continuing twenty six weeks. The college building is well located, conveniently arranged and contains new and well equipped laboratories. Both lecture and recitation systems of instruction are employvd. The instruction is eminently practical, bedsides teaching being the feature. The dispensary service is large and the material fully utilized. The hospital and clinical facilities are excellent; a part of the courses completed each year. The fees are moderate, half the lecture fee charged to sons of physicians.

For information and announcement address the Dean, J. D. Griffith, M.D., or the Secretary, Franklin E. Murphy, M.D.

MARION-SIMS COLLEGE OF MEDICINE.

ST. LOUIS, MO.

This college will continue to offer a high class course of medicine in keeping with the facilities which the institution possesses. The laboratory instruction, clinic inctruction, didactic lectures and reviews and quizzes are utilized to their utmost.

The Rebekah Hospital, which is upon the college grounds, affords students an opportunity for witnessing a great variety of operations, while the City Hospital, Insane Asylum, City Almshouse, Pius Hospital, Lutheran Hospital and Grand Avenue Dispensary provide abundant clinical instruction.

The session begins Sept. 28, 1897, and ends April 10, 1898. Fees are as follows: Matriculation fee, $5; entire lecture fee, $50; final examination fee, $25; dissecting ticket, $10; chemical laboratory fee, $5; microscopic laboratory fee, $5; lecture ticket, for sons and brothers of physicians and sons of clergymen, $25; lecture fee for all courses, including matriculation, dissection and examination fee, if paid in advance, $150. Y. H. Bond, M.D., Dean; H. W. Loeb, M.D., Secretary.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF THE STATE OF MISSOURI.

COLUMBIA, MO.

Announcement.—Session opens Sept. 14, 1897. Length of term nine months. Fees, $20 for first year and $50 each for second and third years. Good board at the university clubs at $2 per week. Laboratories are the leading feature of this department. They consist of physics, chemistry, biology, physics, anatomy, pathology and bacteriology. All laboratories are conducted by able men, living upon adequate salaries, and *not* practicing, but giving their entire time to teaching and investigation.

Requirement for admission, in lieu of a diploma from a literary or scientific college or high school, is an examination in each of the following branches: History, English (on the grade of Longman's "School Grammar"), mathematics (algebra), Latin (equal to one year in a high school).

For further information address A. W. McAlister, M.D., Dean of the Faculty.

ST. LOUIS MEDICAL COLLEGE; MEDICAL DEPARTMENT OF WASHINGTON UNIVERSITY.

ST. LOUIS, MO.

Session begins Sept. 23, 1897, and ends April 28, 1898.

Our laboratories are well equipped and admirably adapted for the comfort and instruction of 400 students. Our clinical facilities in medicine are of the best, and include our clinics, private hospitals and a full share of work in the city institutions.

Many years' experience as an advanced school of high standard has perfected the curriculum. Henry H. Mudd, M.D., Dean, 2604 Locust Street; John B. Shapleigh, M.D., Secretary, 2608 Locust Street.

UNIVERSITY MEDICAL COLLEGE.

KANSAS CITY, MO.

Recognizing the advantage derived from an extended course of study, the graduates of this College are required to pursue the study of medicine at least four years, and must have attended three full courses of lectures.

The clinical advantages, offered the student by the various hospitals of the City, attract to this College matriculates from every State of the Union.

The teaching corps comprises no less than forty teachers who are men of recognized ability in their departments.

The course of study begins Sept. 14, 1897, and continues six months, and the cost of the general lecture ticket, including all laboratory and practical work, is $75.

As the faculty consists of members who constitute the staff of the various hospitals, it offers the student unusual opportunities for special study in each department. C. F. Wainwright, M.D., Dean; John Punton, M.D., Secretary.

JOHN A. CREIGHTGN MEDICAL COLLEGE.

OMAHA, NEB.

The next term in this institution begins September 28, and will open under the most favorable auspices as the new building (one of the best in the country) has just been completed and furnished and equipped for teaching medicine according to modern ideas.

This college has exceptionally fine clinical advantages, having exclusive control of the clinical material in the St. Joseph's Hospital (a hospital of 300 beds). Being situated in the heart of the city the dispensary clinics are also very large. Two internes are appointed (by competitive examination) to St. Joseph's Hospital, from the graduating class. The course is a graded one consisting of four terms of seven months each. Large and thoroughly equipped laboratories offer unsurpassed advantages for the study of histology, pathology, bacteriology, etc. The anatomic rooms are large, well lighted and ventilated, with plenty of material always on hand. D. C. Bryant, M.D., Secretary.

OMAHA MEDICAL COLLEGE.

OMAHA, NEB.

The Omaha Medical College will enter upon its seventeenth annual session October 1, next.

The course is graded, extending over four years of seven months each. The system of instruction embraces didactic and clinical lectures, recitations, laboratory work in chemistry, histology, pathology, bacteriology, physiology and anatomy.

The facilities and equipment are thoroughly up to date. The building is new and has lecture-room and laboratory capacity for 250 students. A well patronized out door dispensary is connected with the College.

Clinical instruction is given in the Omaha, Clarkson, Immanuel, Douglas County and Presbyterian Hospitals, in all of which the staffs are made up from the College faculty.

The fees are $65, for each course, and a $30 examination fee divided among the different years.

Dissecting material is abundant. W. O. Bridges, M.D., Secretary, 1623 Douglas Street.

ALBANY MEDICAL COLLEGE.

MEDICAL DEPARTMENT UNION UNIVERSITY.

ALBANY, N. Y.

Four years' strictly graded course. Instruction is by lectures, recitations, laboratory work, clinics and practical demonstrations and operations. The Faculty is composed of thirteen professors, assisted by five adjunct professors, three clinical professors, six lecturers and seventeen instructors. Hospital advantages are excellent. Fees: Matriculation, $5 each year; lectures $100 per session; laboratory courses, $50; graduation fee, $25. Regular winter season begins September 28; commencement the third Tuesday in April. For catalogues and further information, address Willis G. Tucker, M.D., Registrar, 4 Lancaster Street.

BELLEVUE HOSPITAL MEDICAL COLLEGE.

NEW YORK CITY.

The new College building, which will be occupied before the close of the session of 1897-98, will afford much larger facilities for teaching than have hitherto been enjoyed by the College and will provide additional lecture-rooms, laboratories and rooms for section teaching, dissections and demonstrations. The lengthening of the session to thirty-two weeks and the extension of time of study from three to four years will enable students to devote more time to laboratory work than heretofore.

The collegiate year now consists of thirty-two weeks, with the usual holidays, beginning Sept. 27, 1897. The fees for lectures for each year remain at $150. Since the last session some important changes have been made in the arrangement of the Faculty, and in additions to the corps of teachers.

THE BROOKLYN POST-GRADUATE SCHOOL OF CLINICAL ELECTRO-THERAPEUTICS AND ROENTGEN PHOTOGRAPHY.

BROOKLYN, N. Y.

This clinic is intended to practically supplement the study of theory and electrophysics by instructing the physician how to treat patients with electricity—how to prescribe, dose, and apply all forms of medical currents, and operate and properly care for apparatus.

The plan of instruction recognizes the value of time to post-graduate and visiting students, and aims to impart the useful essentials of technique as quickly as possible. Therapeutic technique with galvanic, faradic and static currents will be demonstrated by object lessons without didactic lectures, all theory and physiologic instruction being prepared in printed form. Clinics Monday, Wednesday and Friday afternoons from September 17, to June 1. Term for course of three weeks in therapeutic technique $30. Single clinic $10. X ray complete instruction in manipulation of Crookes' tubes, demonstrating maximum effects, one session only required, $15. Special or particular courses of instruction arranged as desired to suit physicians with limited time. For further particulars address, S. H. Monell, M.D., 865 Union Street.

COLLEGE OF MEDICINE, SYRACUSE UNIVERSITY.

SYRACUSE, N. Y.

The college year begins on the first Tuesday in October and ends on the second Tuesday in June. It is divided into two terms about equal in length.

The annual tuition fee of $125 includes all laboratory courses and material, clinical clerkships, bone loan, microscopes, other laboratory instruments, library, reading rooms and other college appointments, for either instruction or the convenience and pleasure of the students.

Its building is new and large with the latest and best equipments, including a generous cold storage plant furnishing wholesome anatomic material at all seasons.

Its graduates are among the most successful candidates for license before the New York Examining Board. Chancellor Upson of the Regents, unsolicited says: "It it admitted by all competent judges to be unsurpassed in this State."

LONG ISLAND COLLEGE HOSPITAL.

BROOKLYN, N. Y.

The regular term for session 1897-98 will commence Sept. 29, 1897, in the new Polhemus Memorial Clinic.

Send for announcement, after June 10, to J. H. Raymond, M.D., Secretary of Faculty, Long Island College Hospital, Brooklyn, N. Y. Alex. J. C. Skene, M.D., President.

MEDICAL DEPARTMENT, NIAGARA UNIVERSITY.

BUFFALO, N. Y.

The Faculty is composed of twenty-one professors, three associate, three adjunct professors, six lecturers, one demonstrator and eight instructors and assistants.

Every student must attend an extended course in the laboratory of pathology, histology, chemistry and bacteriology.

Especial attention is given to bedside instruction and no student can report for graduation until he has successfully cared for at least seven cases of labor.

Clinical material is obtained from twelve hospitals and two dispensaries. Term begins Sept. 28, 1897; commencement exercises May 11, 1898.

Fees; Registration fee, to be paid each year, $5; general course of instruction, one year, $75; dissection (first two years) each year, $10; histologic laboratory, $10; pharmacal laboratory, $5; chemic laboratory (first two years) each year, $10; pathologic laboratory, $10; bacteriologic laboratory, $10; examination fee each year except senior year, $5; examinations, senior year, $15.

President, John Cronyn, M.D.; Registrar, Alvin A. Hubbell, M.D.; Secretary, Harry A. Wood, M.D.

NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL.

A CLINICAL SCHOOL FOR GRADUATES IN MEDICINE AND SURGERY.

NEW YORK CITY.

The session opened Sept. 15, 1897. The lecture rooms immediately adjoin the wards, thus enabling the students not only to witness the operations but the after-treatment. The hospital contains seventy nine beds, chiefly occupied by surgical and gynecologic cases. In the various dispensary classes 200 patients a day are treated.

Faculty: Surgery, Professors Wyeth, Fowler, Dawbarn, Van Arsdale and Townsend. Medicine, Professors Page, Kaztenbach, Van Valzah and Adler. Gynecology. Professors Munde, Gill Wylie, Goffe, Pryor and Krug. Diseases of children, Professors Holt and Seibert. Diseases of the skin, Professors Robinson and Bronson. Diseases of the nose, throat and ear, Professors Gleitsmann, Pomeroy, Myles, Asch and Sheppard. Diseases of the eye, Professors Webster and Marple. Diseases of the mind and nervous system, Professors Grey and Sachs. Obstetrics, Professor Ayers.

General ticket, $100 for six weeks; $150 for three months. For further information apply to W. R. Townsend, M.D., Secretary.

THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

NEW YORK CITY.

This institution has just entered upon its sixteenth year. Five hundred and thirteen physicians from all over the continent have attended the courses at the institution during the past year. More than one thousand operations were performed in the Hospital, which is one of the largest in the city, containing special wards for babies and children, while about twenty thousand patients were treated in the outdoor department. Recent discoveries have revolutionized medical and surgical methods and a man whose medical education ended fifteen years ago is not a physician or surgeon within the present meaning of the term. Post-graduate medical instruction is for the purpase of furnishing to these graduates in medicine a means of refreshing their knowledge. It supplies them with the opportunity of coming in direct contact with disease by means of special courses in all the departments of medicine and surgery.

THE NEW YORK SCHOOL OF CLINICAL MEDICINE.

NEW YORK CITY.

This school, which was organized less than two years ago in order to meet in our own country the demand for individual post graduate instruction, which hitherto was obtainable only in Europe, is enjoying unprecedented success. The work is wholly clinical. Matriculates are admitted into the classes as assistants, and are thus placed in direct contact with the patients, to examine and treat them, assist at and even perform operations under the guidance of the professors, who are all well known specialists in their several branches. Only three or four physicians are received into each class—as many as the teacher can personally instruct. Fees are from $10 to $25 per course. The courses are four weeks in length.

UNIVERSITY MEDICAL COLLEGE (MEDICAL DEPARTMENT OF NEW YORK UNIVERSITY).

NEW YORK CITY.

The session begins on Thursday, Sept. 30, 1897, and continues until May 18, 1898.

The curriculum consists of a four years' graded course. Instruction is given by lectures, recitations, clinical and bedside teaching and laboratory courses. The four years' course obviates the overcrowding which obtained under the previous system.

The University Medical College is entitled to utilize, for clinical teaching, its quota of the vast quantity and variety of clinical material of the great city hospitals, viz., Bellevue, City Maternity, Gouverneur, Harlem, almshouse, workhouse, Incurables, Randall's Island, Fordham.

Fees; Matriculation, $5; fee for all required exercises of the year (including dissection, laboratory courses, physical diagnosis, operative surgery and practical obstetrics), $175 a session.

THE WOMAN'S MEDICAL COLLEGE OF THE NEW YORK INFIRMARY FOR WOMEN AND CHILDREN.

NEW YORK CITY.

The Woman's Medical College of the New York Infirmary for Women and Children, 321 East 15th Street, was founded in 1865 by Drs. Elizabeth and Emily Blackwell.

The college course is four years, beginning October 1; fees for the entire course, $515. Instruction is by lectures, recitations and practical work in laboratories, and by clinics in the Dispensary and Infirmary connected with the College. During 1896 97, 13,640 patients were treated in the Dispensary and 752 in the Infirmary. Operations and clinics in the city hospitals are free to students of this College. Emily Blackwell, M.D., Dean.

NORTH CAROLINA MEDICAL COLLEGE.

DAVIDSON, N. C.

The North Carolina Medical College has recently completed a new brick and granite building which will add very much to the efficiency of the work done. Class room work and thorough drilling in the fundamentals are the special features of this school. The length of term is eight months.

Tuition fee $75; matriculation $5.

THE CINCINNATI COLLEGE OF MEDICINE AND SURGERY.

CINCINNATI, OHIO.

The Cincinnati College of Medicine and Surgery opens Sept. 27, 1897, and continues seven months. The fees are $75. Special attention is given to laboratory and clinical methods during a four years' graded course. Hospital instruction is at the City, St. Mary's and the Jewish Hospitals. Two hours daily are given to clinical work at the College. *Women admitted.* W. E. Lewis, M.D., Secretary, 409 E. Fifth Street.

THE CLEVELAND COLLEGE OF PHYSICIANS AND SURGEONS.

MEDICAL DEPARTMENT OF THE OHIO WESLEYAN UNIVERSITY.

CLEVELAND, OHIO.

The College opens Sept. 22, 1897. Women are admitted on equal terms with men.

The course is four years, of eight months each; general ticket $100. This includes all expenses except the examination fee and a small sum for material used in the laboratories. The laboratories are all splendidly equipped, and presided over by the most competent teachers.

The medical management of the Cleveland General Hospital is in the hands of the Faculty. This Hospital is one of the most liberal, and has the largest patronage in the wards and dispensary of any institution in the city. The didactic and clinical lectures of the senior year are all delivered in the amphitheater of this building, thus affording students an opportunity to see practically all the emergency cases, both medical and surgical, that are admitted. Joseph F. Hobson, M.D., 429 Prospect Street.

LAURA MEMORIAL COLLEGE.

CINCINNATI, OHIO.

The College has been partially endowed, and is therefore not dependent upon the fees of students for its proper support.

The course consists of four years, of seven months each, each session beginning October 1 and closing May 1.

The students have exclusive access to the clinics and wards of the Presbyterian Hospital. They also attend the clinics at the Cincinnati Hospital, and have bedside instruction at the same institution.

The laboratories are all new and perfectly appointed. A special feature is a pharmacologic laboratory for experimental research, and a laboratory in skiagraphy.

The general lecture fees are $50 per year.

Graduates of the institution have exclusive opportunity for interneships in the Presbyterian Hospital, and may enter the competetive examination for interneship in the Cincinnati Hospital and in Christ Hospital. John M. Withrow, A.M., M.D., Dean.

THE MEDICAL COLLEGE OF WESTERN RESERVE UNIVERSITY.

CLEVELAND, OHIO.

This school graduated its first class in 1844. Its course in medicine is four years, of eight months each.

The requirements to enter are practically the same as for entrance to Adelbert College, the literary-scientific college of the university. The requirement for graduation with the degree of "Doctor of Medicine" is, that every branch included in the course shall have been completed to the satisfaction of the Faculty of the college and trustees of the university. This college has large hospital and dispensary clinical opportunities; large and thoroughly equipped laboratories; teachers in theoretic branches who devote their entire time to teaching, and who themselves have had high training and experience as teachers. It has (annually) thirteen hospital appointments at its disposal, with others open to its students on competition.

For information as to the cost of the course see advertisement in JOURNAL. G. C. Ashmun, M.D., Dean.

MIAMI MEDICAL COLLEGE.

CINCINNATI, OHIO.

The Miami Medical College of Cincinnati, a member of the American Medical College Association, has a course of four years, with a seven months' term each year. The fees are: Matriculation $5, paid once; lecture fees, annually, $100; Cincinnati Hospital ticket, annually for three years, $5. The special advantages of this school are its excellent facilities for clinical instruction. Twelve members of the faculty deliver bedside and amphitheater lectures at the Cincinnati Hospital, the great general municipal hospital, and the college has under its own control the Miami Maternity Hospital—a free lying in hospital—and the Ophthalmic Hospital Building where are held its own general and special clinics on medicine, surgery, ophthalmology, otology, laryngology, gynecology, dermatology and neurology. A. P. Dundridge, A.M., M.D., is Dean; Joseph Eichberg, M.D., Secretary.

OHIO MEDICAL UNIVERSITY.

COLUMBUS, OHIO.

The phenomenal growth of the Ohio Medical University is a source of pride to those who have labored to the end of establishing a strictly high grade institution. For this success due credit must be given to the university system of teaching adopted in all departments, which has proven far superior to the old lecture plan with final examinations.

The curriculum covers four years' work, in terms of seven months each, with requirements for admission and graduation fully abreast with the highest grade colleges.

Clinical facilities are abundant, the various hospitals connected with the university furnishing during 1896, 462 medical and 816 surgical cases. This does not include 30 obstetric cases and special clinics at the Ohio Penitentiary and State Hospitals.

STARLING MEDICAL COLLEGE.

COLUMBUS, OHIO.

The fifty first annual course of lectures will commence on Sept. 15, 1897, and continue until April 13, 1898.

The course is graded and covers a period of four years. Instruction is given by lectures, recitations, clinical teaching and practical demonstration.

Thorough laboratory instruction is given in histology, anatomy, chemistry, physiology, bacteriology, pathology, embryology and biology.

The requirements for graduation conform to the standard of the State Board of Medical Examination and the Association of American Medical Colleges.

For catalogue or fuller information address Thos. C. Hoover, M.D., Registrar, 249 E. State St.

TOLEDO MEDICAL COLLEGE.

TOLEDO, OHIO.

The seventeenth annual session of the Toledo Medical College begins Sept. 30, 1897. Four courses of six months each are required. The new and commodious college building, four stories high, has every equipment and modern convenience. It is situated between the Toledo and St. Vincent Hospitals, one square from each, the former with 100, the latter with 200 beds, and has full use of both, also of the Woman's Retreat and Foundling's Home. It has a continuous free dispensary with a large clinical attendance. The fees are $50 for general ticket, or $175 for four or more years. Considering the individual instruction possible in a school of its size, no more thorough course in medicine can be obtained anywhere. Wm. J. Gillette, M.D., Secretary.

UNIVERSITY OF CINCINNATI.

DEPARTMENT OF MEDICINE, MEDICAL COLLEGE OF OHIO.

CINCINNATI, OHIO.

The Medical College of Ohio during the past year became the Medical Department of the University of Cincinnati, but retained the name which it has held since its foundation by Daniel Drake in 1819. The new building contains the lecture halls and the laboratories, which have been splendidly equipped. A thoroughly modern clinic building has been erected on the grounds and has proved to be admirably adapted for its purpose.

The course consists of four years of seven months each. The fee of $100 includes all required laboratory work and dissections. The clinical advantages are very great and positions in six of the hospitals are open to graduates of the college. W. W. Seely, A.M., M.D., Dean; James S. Hyndman, M.D., Secretary, 22 W. Ninth St.

MEDICAL DEPARTMENT, UNIVERSITY OF OREGON.

PORTLAND, OREGON.

The Medical Department of the University of Oregon is located in the city of Portland, is a member of the Association of American Medical Colleges, its requirements being those laid down by that organization. Since 1896 it has been a four course school. It has a corps of well qualified instructors, there being fourteen professors and eight adjunct lecturers. The chemic and bacteriologic laboratories and dissecting department are specially complete.

Good Samaritan, St. Vincent and the Multnomah County Hospitals are utilized for clinics, which are frequent, and the material varied and abundant.

The fees are graded according to class entered. Matriculation is $5, fee for each course varying from $130 to a free ticket for the fourth year to those who attend all four courses in this school; examination fee is $30. S. E. Joseph, M.D., Dean.

MEDICAL DEPARTMENT, WILLAMETTE UNIVERSITY.

SALEM, OREGON.

The Medical Department of Willamette University is permanently located at Salem, the capital of the State, and is now entering upon its thirty-second year. The course of instruction continues through four years, in accordance with the highest and best standard of modern advancement.

The regular course of instruction will begin on Wednesday, September 29, and continue for six consecutive months. Students must conform to the requirements of the Association of American Medical Colleges for matriculation and graduation.

Fees: First year, matriculation fee, $5; lecture fee, $100; demonstrator's fee, $5; breakage fee in laboratory (returnable if not used), $3. Second year, lecture fee, $100. Third year, lecture fee, $75. Fourth year, lecture fee, $20; examination fee, $30. W. H. Byrd, M.D., Dean.

THE JEFFERSON MEDICAL COLLEGE.

PHILADELPHIA, PA.

The course is a graded four years' curriculum. It consists of didactic lectures and recitations by the faculty, laboratory work under the charge of a large corps of demonstrators and assistants, and clinical lectures in every special field, with ward classes conducted in the college hospital. The institution is provided with its medical hall and museum, its laboratories, recently much enlarged and fitted out at great expense, and its hospital, where over three hundred patients are treated daily. The maternal department maintained in a separate building, utilized over two hundred cases of midwifery last year for the instruction of the graduating class. The winter course lasts nearly eight months.

The annual fee is $150, the matriculation fee, $5 (paid but once). No diploma fee. J. W. Holland, M.D., Dean.

THE MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA.

PHILADELPHIA, PA.

This college enters upon its seventeenth year October 4. The results of open competitive examinations and of those of the State Examining Board have shown beyond question that its graduates can hold their own with the most favored institutions. The completion of the new clinical amphitheater, the finest and largest in the country, greatly adds to the facilities for clinical teaching, upon which together with laboratory training the college lays special claim to superiority. Other marked improvements have been made and, most important of all, the addition to the faculty staff of several well known and skilled instructors will be a guarantee that the institution will maintain its position in the forefront of American medical colleges.

The tuition fees range from $145 for the first year to $100 for the fourth.

PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE.

PHILADELPHIA, PA.

Practical individual instruction, clinical and demonstrative, is given to physicians only, during the entire year.

The post-graduate department offers opportunities for obser vation and study, alike to experienced practitioners who desire to acquaint themselves with the most recent developments in medical science and art or to take up special lines of practice, and to recent graduates who wish to become particularly familiar with medicine and surgery in its dispensary and the methods employed in hospital wards.

Courses may begin at any date. The fee for any one branch is $15. A general ticket for all clinical branches, $90. M. J. Stern, M.D., Secretary.

UNIVERSITY OF PENNSYLVANIA, DEPARTMENT OF MEDICINE.

PHILADELPHIA, PA.

The one hundred and thirty-second annual session will begin Friday, Oct. 1, 1897, at 12 M., and will end at commencement, the second Thursday in June.

The curriculum is graded, and attendance upon four annual sessions is required. College *graduates* in arts or sciences who have pursued certain biologic studies, are admitted to advanced standing.

Practical instruction, including laboratory work in chemistry, histology, osteology and pathology, with bedside instruction in medicine, surgery, gynecology and obstetrics, is a part of the regular course and without additional expense.

For catalogue and announcement containing particulars, apply to John Marshall, M.D., Dean, Thirty-sixth Street and Woodland Avenue.

WESTERN PENNSYLVANIA MEDICAL COLLEGE.

MEDICAL DEPARTMENT OF THE WESTERN UNIVERSITY OF PENNSYLVANIA.

PITTSBURG, PA.

This college offers graded courses of eight months, session of 1897–98, twelfth year, commencing Oct. 5, 1897.

Four years required for graduation. Instruction eminently practical. Clinical facilities afford advantages to students. *New* college and clinical buildings with extensive laboratories freshly stocked with every needed appliance in all departments. Hospital operative clinics, maternity clinics and dispensary out-door clinics are given daily. Laboratory work is continuous. Quizzes given regularly. For particulars address T. M. T. McKennan, M.D., Secretary, 524 Penn Avenue.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA.

PHILADELPHIA, PA.

The forty-eighth annual session opens Sept. 29, 1897. A four years' graded course of lectures, quizzes, bacteriologic and clinical work offers superior advantages. Students are admitted to the clinics of city hospitals. Address Clara Marshall, M.D., Dean, 1712 Locust Street.

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA.

CHARLESTON, S. C.

This College, founded in 1828, offers a three years' graded course, good hospital advantages, well equipped chemic, pathologic and bacteriologic laboratories, modern dissecting room, excellent teaching facilities and ample clinical material. Every facility afforded for a thorough course of instruction by lectures, demonstrations, quizzes, laboratory work and frequent clinic.

Lectures begin Oct. 1, 1897. Commencement exercises April 1, 1898.

Fees: First year, matriculation $5, lectures $100, laboratory fee $5; second year, lectures $100, laboratory fee $5; third year, lectures $80, laboratory fee $5. No further charge for dissecting and hospital ticket or diploma fee.

Women admitted to medical and pharmaceutic courses.

For catalogue and other information address Francis L. Parker, M.D., Dean, 70 Hassell Street.

CHATTANOOGA MEDICAL COLLEGE.

MEDICAL DEPARTMENT OF GRANT UNIVERSITY.

CHATTANOOGA, TENN.

On September 15 the College opens the regular annual course of instruction. The session will continue twenty-six weeks of actual teaching. It has an ample teaching corps of twenty-three instructors, with six well equipped laboratories and such clinical facilities as can only be afforded by a population of a city of this size. It promises to its patrons a splendid opportunity for a thorough preparation for the practice of medicine. The fees are reasonable ($50 for professor's ticket), having been arranged so as to encourage the worthy young man in his efforts to obtain a medical education. Through the three year graded course the student receives all positive instruction possible by placing special emphasis upon individual laboratory training, as well as by didactic lecturing and recitations. J. R. Rathmell, A.M., M.D., Dean; G. Manning Ellis, M.D., Secretary.

MEHARRY MEDICAL COLLEGE.

NASHVILLE, TENN.

The twenty second annual session of Meharry Medical Department of Central Tennessee College, Nashville, Tenn., will open Sept. 13, 1897.

This institution is designed for the education of colored physicians, and more than half of the regularly educated colored physicians of the Southern States are numbered among its alumni. It has a graded course of study of four sessions. The College has well equipped laboratories and good clinical advantages are furnished. There are fifteen members in the faculty. One hundred and fifty-two students were enrolled the past session.

For catalogues or further particulars address G. W. Hubbard, M.D., Dean.

MEMPHIS HOSPITAL MEDICAL COLLEGE.

MEMPHIS, TENN.

This College was organized in 1878, and has more than 1,200 graduates.

Its corps of instructors consists of ten professors, fifteen assistants and a full corps of quiz-masters to carry on free quizzes and reviews.

The fees are $75 for full set of tickets, including all laboratory work.

The length of term is six months, beginning in October and closing the last of the following March. It possesses clinical advantages in two hospitals, in addition to the College Dispensary, which latter has over 4,000 patients each session. The attendance for the session of 1896–97 was 316 students, the largest number of regular medical students that attended any Southern college.

For further information address W. B. Rogers, M.D., Dean.

SEWANEE MEDICAL COLLEGE, UNIVERSITY OF THE SOUTH.

SEWANEE, TENN.

This College is now engaged in its sixth annual course of lectures extending from June to the ensuing January.

The present class is exceedingly encouraging both in numbers and quality, and gives assurance of a grand success.

The requirements, rigidly exacted, are for entrance, ample preliminary education, and for graduation, attendance upon three annual courses of lectures.

The elevated mountain location of the institution insures health, comfort and favorable conditions for study during the summer and fall seasons.

The establishment of a charity hospital, now in preparation, with sanitariums and an out-door department, will furnish the much needed clinical facilities and render the equipments perfect.

The college fees, per session, are from $55 to $65: graduation fee, $25. For information address J. S. Cain, M.D., Dean.

TENNESSEE MEDICAL COLLEGE.

(MEDICAL AND DENTAL DEPARTMENT.)

KNOXVILLE, TENN.

The Faculty embraces eighteen professors and seven lecturers and demonstrators. The session for 1897–98 begins Oct. 1, 1897, and ends April 1, 1898.

Fees: Medical department, $65; dental department, $100, per session. Three years' attendance is required.

Members of the Southern Medical Colleges Association, National Association of Dental Faculties and National Board of Dental Examiners.

All departments are equipped with the most modern appliances. Temperate climate; a medium between the extreme North and the South. J. C. Cawood, M.D., President.

UNIVERSITY OF NASHVILLE, MEDICAL DEPARTMENT.

NASHVILLE, TENN.

Throughout the south and southwest, for nearly half a cen-

tury, the name of this institution has stood for superiority in medical education. Though well along in middle life, progress continues to be the watchword. The new college building is complete in every appointment for the most modern and thorough instruction and the personel of the faculty such as to commend and retain the confidence of all.

From present indications the coming session promises to be the most successful in the history of this school. William L. Nichol, A.M., M.D., Dean.

UNIVERSITY OF TENNESSEE, MEDICAL DEPARTMENT.

NASHVILLE, TENN.

Preliminary term opens September 6. Regular session begins October 4. Commencement will be held the latter part of March, 1898.

This college gives a three years' graded course.

The instruction consists of didactic lectures, clinical teaching, practical instruction and examinations or quizzes.

From four to five didactic lectures are delivered daily. Two clinical lectures are given daily, one in the City Hospital and one in the clinical amphitheater at the college.

Clinical facilities: The City Hospital, Davidson County Hospital and the College Dispensary clinics.

Laboratory courses in chemistry, microscopy, bacteriology, pathologic anatomy and surgery are compulsory.

Practical anatomy, laboratory work and clinical instruction are emphasized, and ample facilities for their study are provided. Fees: First year $100; second year, $100; third year $115. For information address Paul F. Eve, M.D., Dean, 614 Broad St.

VANDERBILT UNIVERSITY, MEDICAL DEPARTMENT.

NASHVILLE, TENN.

This institution has had twenty-three years of prosperity. In building, equipments and teaching corps she easily stands among the first of the medical schools of the land. Through the influence of his wife, Commodore Vanderbilt was induced to establish a university in the South. He selected Nashville as the most suitable location for such an institution. To his princely gifts the late William H. Vanderbilt added largely. The first department of the Vanderbilt University to begin work was the Medical Department. Her alumni, numbering now about 2,600 are to be found in various parts of the country and many of them are already famous as medical men.

UNIVERSITY OF TEXAS, MEDICAL DEPARTMENT.

GALVESTON, TEXAS.

The Medical Department consists of the Schools of Medicine, of Pharmacy, and of Nursing. The School of Medicine offers instruction under twenty competent specialists, extending over a period of four years, leading to the degree of M.D. Women are admitted.

Tuition in all departments of the university is free. A matriculation fee of $30, payable but once, is charged.

The session begins October 1. The school possesses a complete equipment. For information address, Geo. T. Winston, M.D., President.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF VERMONT.

BURLINGTON, VT.

With its forty fourth session, beginning in January, 1898, and continuing until July, this school inaugurates the four year system of graded study as a requisite for graduation. The Mary Fletcher Hospital affords ample clinical facilities. Laboratories for chemic, histologic and bacteriologic work; an abundance of anatomic material, and apparatus for surgical and obstetric manikin practice are provided. Entrance examinations are required before matriculation. The Faculty includes eminent specialists from distant cities. The number of students last session was 253; graduates 53. The annual lecture fee is $100; examination, $25; matriculation, $5. Address B. J. Andrews, M. D., Secretary.

MEDICAL COLLEGE OF VIRGINIA.

RICHMOND, VA.

The Medical College of Virginia is one of the oldest and best known medical institutions in the South. Extensive additions have recently been made whereby its facilities have been much extended. The City Free Dispensary and Old Dominion Hospital, under the control of the Faculty, adjoin the College. Dental and pharmaceutic departments have recently been established and will be in operation at the opening of the coming session. The Faculty (Christopher Tompkins, M.D., Dean) consists of eighteen professors and nineteen lecturers, demonstrators and instructors. The course of instruction covers three sessions of seven months each, but will most probably be extended to four next year. Fees for each session, $90. The session began on Sept. 21, 1897.

UNIVERSITY COLLEGE OF MEDICINE.

RICHMOND, VA.

This institution, with Hunter McGuire, M.D., LL.D., President, is now in the fifth year of its existence. Twice since its establishment the building has been enlarged, and now extensive buildings are being added for laboratory purposes, etc. When completed at the opening of the next session, September 30, the institution will have accommodation for 500 students.

It embraces three degree-conferring departments, medicine, dentistry and pharmacy, each with independent Faculties, the whole teaching staff consisting of fifty-one professors and instructors. There were 274 students last year.

The course is a well graded one and consists of three terms of eight months each; the tuition fees for the whole course in medicine being $225. This institution has the benfit of the clinical material afforded by two hospitals and two dispensaries.

UNIVERSITY OF VIRGINIA, MEDICAL DEPARTMENT.

CHARLOTTESVILLE, VA.

The session began September 15 and will continue nine months. The course of study extends over three full sessions, and is graded as follows: 1., Chemistry, biology, descriptive anatomy. 2. Physiology, bacteriology, pathology, regional anatomy, materia medica, obstetrics. 3. Gynecology, surgery, therapeutics, practice, ophthalmic surgery, hygiene and medical jurisprudence.

The utmost attention is paid to securing accurate instruction. The practical work is done under minute individual supervision. The tuition fees for the three years amount to $120, $100 and $60 respectively. The other necessary expenses are from $25 to $35 per month.

The University of Virginia is situated in the beautiful and healthful region of Piedmont, Va. For fuller information apply for catalogue to P. B. Barringer, M.D., Chairman of the Faculty.

THE SOUTHERN MEDICAL COLLEGE ASSOCIATION.

[Received too late for insertion on page 632.]

The Southern Medical College Association makes the following requirements, viz.:

Every student applying for matriculation must possess the following qualifications:

He must hold a certificate as the pupil of some known, reputable physician, showing his moral character and general fitness to enter upon the study of medicine.

He must possess a diploma of graduation from some literary or scientific institution of learning, or certificate from some legally constituted high school, General Superintendent of State Education, or Superintendent of some County Board of Public Education, attesting the fact that he is possessed of at least the educational attainments required of second-grade teachers of public schools; provided, however, that if a student, so applying, is unable to furnish the above and foregoing evidence of literary qualifications, he may be permitted to matriculate and receive medical instruction as other students, and qualify himself in the required literary departments, and stand his required examination, as above specified, prior to offering himself for a second course of lectures.

The foregoing certificate of educational qualifications, attested by the Dean of the medical college attended, together with a set of ticket showing that the holder has attended one full course of medical lectures, shall be essential to attendance upon a second course of lectures in any college belonging to the Southern Medical College Association.

1 189—

Dean of . . . . . :

DEAR SIR—Mr . . . . . of . . . . . , is a gentleman of good moral character. I recommend that he be allowed to enter upon his medical studies in your college. He has been my pupil . . months.

Yours, [Sign here]. . . . . M.D.

2 189—

Dean of . . . . . .

DEAR SIR—I have examined Mr . . . . . , of . . . . . and find his scholastic attainments equal to those requisite for a second-grade teacher's certificate in our public schools.

Yours, ...

Supt. of Pub. Instruction.

WISCONSIN COLLEGE OF PHYSICIANS AND SURGEONS.

MILWAUKEE, WIS.

The next session in this school will begin on Wednesday, September 15, and continue until March 29, 1898. Attendance upon four full courses of lectures is required before graduation.

The annual dues including laboratory deposits amount to about $80. The laboratory and clinical facilities of this institution are fully up to the requirements of the present advanced state of medical science. W. H. Washburn, M.D., Secretary.

SOCIETY PROCEEDINGS.

British Medical Association.

Proceedings of the Section on Public or State Medicine at the Sixty-fifth Annual Meeting, held at Montreal, Canada, August 31 to September 4, 1897.

WEDNESDAY—SEPTEMBER 1.

The Section convened at 10 o'clock, A.M., in the lecture room of the Redpath Museum, President E. P. LACHAPELLE, M.D., Montreal, in the Chair.

Among those present from the United States were Drs. Benjamin Lee of Philadelphia; C. O. Probst of Columbus; Felix Formento of New Orleans; Henry D. Holton of Brattleboro, Liston H. Montgomery, Arthur R. Reynolds and N. S. Davis, Jr., of Chicago; Lt.-Colonel Alfred A. Woodhull, U. S. A., and Murray G. Motter of Washington, D.C.; G. D. N. Hough of New Bedford, Mass.; E. C. Rivers of Denver, Colo.; Wolfred Nelson of New York, and J. C. Shrader of Iowa City, Iowa.

Dr. LACHAPELLE, after extending a hearty greeting to the Section, read a résumé or synopsis of his paper entitled

THE PROGRESS OF SANITATION IN CANADA.

The speaker analyzed all the sanitary legislation in Canada from the time of Louis XIV. to the present, and the hygienic measures under the French régime, 1603 to 1763. Thus in 1667 the King of France established for the Civil State a system of registration of births which is still in force in the Province of Quebec. The same law appertains also to baptisms, marriages and burials. In 1667 the question of food was considered and as a first step in this direction the inspection and price of bread was decided upon. In 1707 meat had to pass inspection regulations equivalent to our modern stamping. In 1748 there were regulations relative to foundlings until they were 18 or 20 years of age.

Following this he spoke of the typhus fever epidemic of 1795 in Ireland, which demanded the urgent protection of the colony and vessels coming from infected ports and the manner in which they were inspected and quarantined. From 1815 to 1821 the government appointed medical vaccinators and granted prizes for a memoir on the advantage of vaccination, etc. In 1832 hygienic measures received a stimulus by the appearance of cholera and a quarantine station was established at Grosse Isle. In 1849 more precise laws were adopted, because of a second invasion of this disease and since the Confederation (1867 to 1897) positive systemization has prevailed in the provincial governments throughout Canada.

Regarding Federal sanitation, all matters relating to foreign countries and to commerce are of Federal jurisdiction and accordingly sanitary laws were passed at Ottawa in reference to immigration and quarantine, the prevention of contagious diseases in animals, the suppression of food adulteration, the compilation of statistics, etc.

In the first year of the Confederation (1868) the Federal government enacted an "Immigration Act" destined to be completed (1871) by the "Quarantine Act," and rendered most effective subsequently. Mention was made of the eight well organized quarantine stations of the government, viz., Grosse Isle, Quebec; Halifax, Nova Scotia; St. John, N. B.; Sydney, Cape Breton; Hawkesbury, Nova Scotia; Chatham, N. B.; Charlettetown, Prince Edward Island, and William Head, B. C., including a detailed description of how the various staffs of these ports see to the inspection and disinfection of vessels, to the vaccination of passengers, to the detention in quarantine when required, etc.

Regarding contagious diseases in animals, the federal station (1884–1896) provides for the quarantining of exported animals and for the repression of epidemics among them.

The "Adulteration Act" appoints food analysts, to whom any person may submit samples; it also has some provisions respecting milk supplies and other foods (1884–1889).

As to provincial sanitation and municipal authority regulations the law varies in different Provinces. Certain Provinces, such as Manitoba and British Columbia, possess special organizations, while in the Northwest Territories and Prince Edward Island there are no provincial boards of health, although there exist sanitary laws investing extended powers in the Lieutenant-Governor in council and in the municipal authorities. In a word, hygienic laws in the Northwest Territories are adapted and elastic as occasion requires. Ontario and Quebec are perhaps the best managed Provinces. The Provincial Board of Ontario was founded in 1882; that of Quebec in 1886. These two boards have enabled public hygiene to make the greatest progress in Canada. In Ontario compulsory vaccination of all children over four months of age has been provided for by the statute and school teachers may require a certificate of vaccination from pupils. The Provincial Government has the entire control of vital statistics (1896), the compiling being done by the secretary treasurer of each municipality. Here also the Food Act is very explicit in cities. In the Province of Quebec vaccination is obligatory by statute in four cities, but any other municipality may render it compulsory. The keeping of the registers of the civil state is still, as in the days of Louis XIV., confided to the care of the clergy of whatsoever denomination and it is from these gentlemen that each month the Provincial Board of Health receives the certificates establishing the causes of death and those reporting the marriages and births. From these reports the Board compiles its statistics. The Provincial Board has power to make regulations to supplement in a certain measure the federal laws. In relation to the prevention of contagious diseases, hygiene in factories, sanitation in general, including the suppression of nuisances, etc., the Quebec Provincial Board has issued permanent and very precise regulations and has formulated in them a standard of effectiveness that must be attained by the municipal boards. Apart from these permanent regulations it has, besides, the eventual powers of making special regulations during the prevalence of epidemics.

In both Ontario and Quebec the Provincial Boards may exercise the power conferred upon the local boards if such local boards neglect or refuse to perform their duties.

In Ontario the interpretation and the enforcing of the "Factory Act" is left entirely to the inspectors.

The appoval of plans of aqueducts and drainage devolves on the Provincial Board in the Provinces of Quebec and Ontario. In Quebec the law regulates the disposal of the dead and enacts that the sites for cemeteries shall be chosen by the Provincial Board.

Speaking of other Provinces briefly: New Brunswick (1887) and Nova Scotia (1893), possess somewhat identical organizations. The Lieutenant Governor in council having the right to legislate on sanitary matters, but only in Nova Scotia can the Lieutenant-Governor exercise his veto. The sanitary laws of New Brunswick (1887–9) very much resemble those of the Province of Quebec, as they confer on the Provincial Board the power to make regulations respecting the prevention of contagious diseases, the inspection of food and of insalubrious industries, drainage and the repression of nuisances. The registration law (1887) provides for the publication of vital statistics. In Nova Scotia, the authority of the Provincial Board with regard to contagious diseases is simply advisory. It may, however, during an epidemic, substitute itself for inefficient municipal boards. Manitoba (1893) admits of a special organization which seems to suit the needs of a country whose population is disseminated over a vast area of territory. Its Provincial Board is composed of five members, a veterinary surgeon and four physicians. For the needs of local administration, the four physicians are titled inspectors, and the Province is divided into four districts. In each district the authority of the inspector is supreme. British Columbia has (1895) a Provincial Board which according to the statute seems to be only advisory, but which nevertheless has established very complete and very effective regulations; for instance it has a measure which surpasses those of any other Province, prohibiting the discharge of sewage into any river. Prince Edward Island has no Provincial Board. It has a gool law respecting vaccination, and by its "Health Act," local boards are appointed in two cities, and the Lieutenant-Governor in council is empowered to appoint a board of health in each county. In the Northwest Territories a law relating to hygiene was passed in 1882. Its means are only preventive. The Lieutenant Governor can hinder any person within the Territories from leaving a locality in which there exists a contagious disease. He can also delay at the frontiers any suspicious outsider. He can divide up the Territories into sanitary districts, and appoint medical health officers if he judge such measures expedient.

The regular order of scientific business was then proceeded with.

Dr. P. H. Bryce read a paper,

HOW FAR SHOULD MANDATORY MEASURES GO IN DEALING WITH: 1, MEASLES; 2, WHOOPING COUGH; 3, TUBERCULOSIS; 4, LEPROSY; 5, CHICKENPOX.

A brief analysis of his paper is as follows:

In Ontario the law, so far as it relates to chickenpox, is a dead letter on account of the mildness of the disease. Regarding measles, in 1894, sixty-five cases died in the entire Province of Ontario; in 1895, forty-one cases; in 1896, forty-three cases.

The writer assumed that the public is not prepared to be quarantined for this disease, as the gravity of the disease will not warrant it. Notwithstanding this, he recommended the following rules for school children for measles or whooping cough: 1. Daily notification to the health office, by the school authorities, of every absentee. 2. The truant officer should visit the home of the child immediately, for investigation. 3. A visit by a medical man to diagnose the disease if any exists. 4. Compulsory notification by the household (this will readily corral the disease, and practical isolation be made at once). 5. Notification, by the teacher, of any further cases of disease occurring in the school, and their immediate removal. 6. Home isolation by means of placards. 7. Disinfection of the house. 8. Closing of the school as a last resort.

Regarding whooping cough, it is contagious long before "cough" has shown itself, or where spasmodic coughing takes place.

As tuberculosis causes more deaths than any other disease, insist on notification of all cases of this kind being made to the health office. Insist on the regulation of the tubercularized, viz., to remain at home, to remain away from factories, etc. Establish hospitals or homes or sanitaria throughout the Province for them.

Leprosy cases need to be isolated.

Dr. C. O. Probst said that we are in the dark as to the cause of whooping cough, yet we can prevent the spread of the disease. He called attention to the fact that in the eleventh census of the United States, 9,256 cases of measles died, 8,432 cases of whooping cough, fifteen cases of leprosy, while 102,199 died from consumption. It is difficult to prescribe mandatory laws in the control of measles and whooping cough, as public opinion is against it. Although we should require notification of whooping cough, yet we have no isolation hospitals for such cases. Apparently, then, notification may not amount to a great deal. Closing the public schools does not protect the children unless the disease is epidemic. The prevalence of these diseases is due to their mildness. He advocated double notification referred to, placarding the homes of the sick and other domiciliary measures. In leprosy, he was in favor of the National Government establishing a place for the segregation of lepers. In tuberculous subjects we can not, unfortunately, isolate these cases. Their sputa should be disinfected. In tuberculosis of lower animals we can enforce mandatory measures in the sale of unsound meat and impure milk, or slaughter the diseased animals when found so by the tuberculin test. There is a close connection between breathing impure or foul air and consumption. Capitalists and others must be made to perform their duty and those in authority should be held responsible.

Dr. H. Handford of England was not in favor of mandatory measures for these mild types of disease. In England many think there is too much legislation already. We need in this branch of medicine in England a Minister of Health.

In scarlet fever the removal of a case can be made compulsory by a magistrate's order, but in his city of 250,000 inhabitants he does not think that such an order has ever been issued. He advocated education and persuasion of the parents on the part of the attending physician, that their confidence may be gained and a case removed voluntarily. Health officers are inclined to be looked upon as officious. He was, however, in favor of mandatory or compulsory measures regarding the disposal of impure milk and impure meat; as in England there are laws governing this, also governing tuberculosis. Leprosy is a clinical curiosity in England. He thinks that what applies to whooping cough applies practically to measles, although in measles the mortality varies greatly. In cities 43 05 deaths in every 1,000 cases occur, while but 6 cases in every 1,000 cases of measles die in country districts; in some cities in England, however, the mortality may reach 49. Notification in England is required by law, and it is a double notification, both by parents and teachers.

Dr. William Oldright of Toronto agreed in part with the last speaker. He thinks we lose sight of much of the educational idea, but he thinks compulsory measures are also necessary. He said that whooping cough is more dreaded than measles in some families and cited a number of illustrations in support of his statement. Regarding tuberculosis, as a usual thing it is not properly dealt with. Rooms at health resorts frequented by tuberculous patients should be more thoroughly disinfected. The same rule holds good regarding the disinfecting of rugs, carpets, etc., in sleeping-cars and hotels, which should be washed oftener; as a rule, this is rarely done.

More isolation hospitals should be established for scarlet fever and diphtheria cases, and with these comes in the mixed infection class; when we come in contact with such a case, where one variety is exposed to the other the case may become more complicated. If placarding is done it should be thorough and not inefficiently. Placards on milk wagons, stating that the dealer deals only in pure milk, is a strong inducement for the people to patronize such firms.

Dr. Ebenezer Duncan of Glasgow thinks tuberculosis is the most important of these diseases to combat. He believes the greatest amount of good can be obtained by increasing the cubic space for breathing pure air and that overcrowding should be condemned. If thorough ventilation is carried out there is not much chance of infection; good feeding should go with this, then notification in case of death. He did not think it was possible to carry out effective mandatory measures with regard to measles and whooping cough.

Dr. Thomas Carr of Braintree, England, urged the necessity of disinfecting the sputa of tuberculous cases. Regarding measles and whooping cough we are not yet ready to isolate these cases in a large district. In 80 per cent. of the towns in England where notification has been tried, it has been abandoned.

Dr. Alexander Johnson of Glasgow—If we attempt to remove cases of measles or whooping cough to isolation hospitals, the plan is likely to fall through and then we are placed in an unfavorable light. Public sentiment is with the people in this matter. Measles is scarcely at all contagious after the eruption has appeared. In whooping cough it is more infectious when the secretions or sputa are abundant and such cases should by all means be isolated.

Dr. Wolfred Nelson of New York—Leprosy is in no sense contagious. I have seen the disease in the Island of Trinidad and the Isthmus of Panama and have known sisters of charity to nurse the disease twenty-six years and be in constant attendance and not a single case developed among them. It is simply a newspaper sensation to state that this malady is contagious, and as intelligent medical men we should add no additional burdens to these unfortunates by sending them away from their former surroundings and family.

Dr. Benjamin Lee of Philadelphia replied to the last speaker by saying or inquiring, if leprosy is not contagious, in what manner do you account for its propagation from person to person? The health authorities of Cape Colony have recently published an exhaustive report on the prevalence of leprosy in that country, in which they strongly sustain the doctrine of contagion. Negative testimony may wipe out positive testimony, although not reliable.

Dr. John A. Macolmson of Middleborough, Eng., thought we could advance public health matters best by educating the people concerning all kinds of disease.

Dr. Felix Formento of New Orleans concluded the discussion by referring to the cases of leprosy he had seen in his city. The disease seemed to be transmitted by heredity or contagion.

Dr. James T. Neech of Atherton, Eng., read a paper on

THE PERIOD OF INFECTION IN SCARLET FEVER.

He thought six weeks too short a period for the specific poison, infection or microbe to cease to multiply, even though desquamation may be complete. Infectivity can be retained in the fluids of the body indefinitely. Complete elimination in the shape of spores is not secured by the emunctory organs. According to his experience the minimum period of contagion is four to eight weeks; the maximum period six months; the average is thirty-nine to sixty-five days. He has known cases discharged from hospitals, as in the above periods of time, convey the disease. He believes the infection is stored up in the secretions of the nose, lungs, lymphatic glands, etc. He had obtained bacteriologic results in hospital cases at the expiration of eight weeks and even thirteen weeks, and he cited one hospital case of 181 days' convalescence wherein the disease had been conveyed. In all cases he advocated that the clothing should be sterilized by steam.

Dr. Johnston of Glasgow, in the discussion, thought eight weeks for hospital cases a short enough time in which a patient could be deemed free from the germs of the disease, and even then his clothing should be steamed and disinfected. Notwithstanding precautionary measures, 2 per cent. carried

infection away with them. He cited an illustration of this kind, that had been in the hospital for three months and then discharged cured, that infected and spread the disease through an entire household. He suggested that these cured cases should be required to sleep alone for two or three months.

Sir JAMES GRANT of Ottawa said that formerly, when there was no sewerage he could trace the origin of scarlet fever to defective drainage. If he should attend a case of scarlet fever he should not think of attending a case of obstetrics short of six weeks. His idea is that the kidney gives the most trouble. The period of infection is not thoroughly defined yet, for the disease may be propagated for a very indefinite period.

Dr. MALCOLMSON recited a case of infection of scarlet fever that had been retained in a hospital fourteen or fifteen weeks that spread the disease after being discharged as cured. The result was that the health authorities were sued and a heavy judgment was obtained.

Dr. ADAM FREDERICK JOHN MICKLE of Christ Church, New Zealand, said: It is not desirable to keep children in a town hospital for too long a period after convalescence from scarlet fever. As soon as convalescence is well established, say in three weeks, and sometimes earlier, they should be removed to the country, as complete recovery will be much quicker in a pure atmosphere; other means can be used to eliminate the poison or infection, such as hot baths; these will hasten the period of complete recovery. Regarding the danger of attending midwifery cases, while attending a case of scarlet fever, I do not think the danger so great as it is usually believed to be. During a very severe epidemic of scarlet fever lasting nine months, which I had to contend with about twenty years ago, I also attended midwifery cases in considerable number and never had any bad results. If asepsis is carried out there is no danger. In some instances the children were laid down with scarlet fever in a room with the mother, where she was confined, and yet I did not see a bad result in a single case of midwifery during the whole epidemic, notwithstanding the scarlet fever swept the children like a plague in the first few weeks of the epidemic. This was doubtless due to the insanitary condition of the town, which was practically without drainage, and the houses being small and on the Scotch system of flats, there was much overcrowding and, lastly, people will not submit to too much isolation.

CADAVERIC FAUNA

Was the subject of an illustrated paper read by Dr. G. DE N. HOUGH of New Bedford, Mass. He divided the said fauna into: 1, workers of the first stage of putrefaction; 2, workers of the second stage; 3, workers of the third stage; 4, consumers of the dried tissues; 5, consumers of the remains of the other workers. These parasites were given in their respective orders of diptera, coleoptera, lepidoptera, etc.

UNDERGROUND ZOOLOGY AND LEGAL MEDICINE.

A study of 150 disinterments with additional experimental observations, by Dr. MURRAY GALT MOTTER of Washington, D. C. The author had experimented and made his observations on bodies that were buried from one year and eleven months up to seventy-one years. The subject is a new one and his paper, medico legally, very interesting. He proved the same kind of beetles, flies and other insects and germs had been found upon bodies whether they had been buried in June or in January, which would disprove the theory that a body supposed to have been buried in either of these months was in reality buried six months subsequently or previously, as the case might have been. He found tetanus germs active after the body had been buried three years.

SELECTIONS.

Medical Education in Canada.—"The general question of medical education is one of great importance and of unceasing interest, nor is this interest confined to the profession; it is becoming universal. The needs of medical education are fortunately being more fully realized by those who on account of their wealth and influence are in a position to render that substantial assistance which is so requisite. The time was when every medical school was a purely proprietary concern 'run' for the money that was in it. We feel in Canada, and I think I can speak for the profession in the neighboring republic, that this day is passed, that high-minded philanthropists like Sir Donald Smith (now Lord Strathcona and Mount Royal), the late John Henry Molson, the McDonalds, the Drakes and others with us, and the Johns Hopkins, the Stanfords, the Vanderbilts, the Rockefellers, the Miss Garretts and others with them are beginning to realize that unendowed instruction in medicine must lead to imperfect results, and that private endowment, in the absence of state aid, has become an absolute necessity to a proper medical training. I am not an advocate for state aid to universities, and I rejoice that the University to which I have the honor to belong is not so dependent, as it might thus be deprived of those gifts of private munificence to which I have just referred. All honor to those far-seeing, open-handed men and women who are giving of their abundance in order to elevate the standard of medical education and by so doing benefit their kind. As Gould very tersely puts it in one of his clever articles: 'I think our reliance must be upon private bequest, and these can be secured only as we interest the rich. We must never weary in showing the neglect of the greatest, most palpable, most certain means of doing good. There is a strange fatality in men, an unaccountable inability of seeing the need that lies nearest, the good that is dearest. There is more money today devoted to astronomy than to the prevention of disease. It is positively wonderful to think that men should be more interested in stars and constellations than in their bodies and their physiologic life.' A question which is now-a-days agitating the minds of those especially interested in medical education is the kind of ground-work which is likely to bear the most direct relation to the future studies of the medical student. I think it is now conceded by all that he is placed at a greater advantage who first passes through an arts or a science course. I am happy to be able to report that from 15 to 20 per cent. of those who are studying medicine in this country today have had a collegiate training in either arts or science. Which of the two should the parent or guardian choose? Had I a son whose instincts were in the direction of medicine I think I should choose for him the science course. The late Professor Huxley thought it was a most self-evident proposition that the educational training for persons who proposed to enter the medical profession should be largely scientific; not merely or even principally because an acquaintance with the elements of physical or biologic science is absolutely essential to the comprehension of human physiology and pathology; but still more because of the value of the discipline afforded by practical work in these departments in the process of observation and experiment, in inductive reasoning and in manipulation. . . . What deters so many from taking a full course in Arts or Science before entering Medicine is the length of time consumed before the doctorate degree is reached, although I hope the time is not far distant when every graduate in medicine in Canada shall of necessity be also a graduate in arts or science. . . . We have in the Dominion of Canada no fewer than eleven medical schools, including one for women only, all having the power of granting degrees and all connected directly or by affiliation with university bodies. To enumerate them: Beginning with the Atlantic Provinces, we have in Halifax the medical school attached to Dalhousie University, the only medical school in the Maritime Provinces; in this province there are four schools, Laval in Quebec, Laval in Montreal, McGill and Bishop's in Montreal; in Ontario, four schools, namely, the Royal College of Physicians and Surgeons, Kingston; the University of Toronto Medical Faculty, Trinity Medical College, and the Ontario Woman's Medical College, in Toronto; in London, Ontario, the Western University Medical Faculty; and lastly, in Winnipeg, the Manitoba University Faculty of Medicine. All told, we had in Canada, during the last winter sessions 286 teachers, including professors, lecturers, and demonstrators, and 1736 students. The tendency for the past few years has been to increase the teaching staff quite out of proportion to the increased number of students. Taking McGill we find that there are in the present year 53 teachers for 388 students, being a proportion of nearly one to eight. Laval, in Montreal, has 36 teachers and 197 students, a still greater proportion. The Toronto School of Medicine had during the past year 41 teachers and 293 students. We find that this proportion compares well with the larger schools in the United States; thus, in 1893, there were in Harvard Medical School 71 teachers to look after 471 students; at the Columbia Medical College in New York with 661 students there were 105 teachers (1 to 6); in the University of Pennsyl-

vania the teaching staff in the same year comprised only 84 members with 825 students, being a little over 1 to 10. What does this mean? Ten years ago when McGill had 237 students, a staff of 23 professors and demonstrators was considered sufficient. Why are so many more thought necessary now-a-days? The number of subjects are differently taught, the old fashioned daily didactic lectures are now given two or three times a week only; but I should be sorry to see them further reduced in number, for I believe that so many are absolutely necessary. It is in the dissecting room, the chemic, physiologic, therapeutic and pathologic laboratories that we see the change. These which before were for the most part only 'side shows' are now made to hum with the practical work which is done within them. . . .

"In order to make the clinical instruction more complete and more thorough, chemic and bacteriologic laboratories have been added to the pathologic departments of our hospitals. . . . The question sometimes arises, however, May the student not be getting too much of a good thing? Is it not possible that laboratory teaching may be overdone? because, as Welch very truly says, 'The student whose knowledge of a subject is derived exclusively from laboratory courses is likely to lose his perspective in details, to acquire only a fragmentary knowledge of the subject, to fail to comprehend the general bearing of observed facts, and not to acquire the general principles and systematic conceptions which are essential. Laboratory work should be accompanied and supplemented by the reading of text books and by lectures.' I am convinced that with us in Canada laboratory work is not overdone, but, on the contrary, in some departments needs and deserves further encouragement. I hope every laboratory teacher in the country realizes that the object of a college is to give a good general education, and not to make experts in various branches. I have long felt myself, however, that the didactic lectures were being unfairly dealt with. There is a feeling abroad that they should be practically elbowed out of sight. I think the didactic lecture has its place in the medical course; and while I quite feel that the old plan of compelling students to listen to five didactic lectures a week in all of the great subjects was a mistake, I still feel that a good lecturer can teach in this way a certain something which can not be imparted by practical instruction or by recitations. The personal influence of a good lecturer very often makes an impression which nothing else can make; and if such lectures are made also demonstrative, as by the use of diagrams, the lantern, experiments, etc., they must of necessity fill a very important place in the medical course. . . . The facilities for clinical teaching in the larger cities of Canada are admirable. Speaking for the city of Montreal, we have in the five general hospitals, the Hotel Dieu, Montreal General, Notre Dame, Royal Victoria and Western Hospitals, nearly 800 beds. The number of students attending the three medical schools was last session 646; and considering that only about half—those of the third and fourth years—have access to the wards, there will be at least two beds for each student. The number of outdoor patients attending the five hospitals daily would aggregate at least 300, so that there can be no possible cause for complaint regarding both the quantity and quality of clinical material available in this city."—T. G. Roddick, M.D., M.P.

A National Memorial to Jenner.—A meeting was recently held in London to establish a memorial to the great Jenner, with the Duke of Westminster as chairman. Lord Herschell, late president of the Royal Commission on Vaccination, in moving the first resolution, "That the present is an appropriate time to inaugurate a work of national utility in honor of Edward Jenner," said that a hundred years ago smallpox was periodically committing ravages which we could now hardly realize. Jenner introduced to the world his discovery that inoculation of cowpox would prevent attacks of the disease, and at the end of the first quarter of the century a marked change was seen not only in this country, but in many of the countries of Europe. From the outset there had been those who doubted the efficacy of vaccination, and the Commission on the subject, over which he presided for many years, had just issued its report. A vast amount of material was considered, and it fell to his lot to have to digest that material, analyze it, and submit a report for the consideration of his colleagues. When he approached that task he approached it with the determination to follow the results to which the facts led, whatever they might be, and he was surprised at the force of the evidence in favor of vaccination. From the "Blue Book" he quoted figures in favor of vaccination which, he said, it was difficult for human reason to resist. Jenner's character and veracity had been attacked by some people who pointed out that he asserted or expected that vaccination would be permanent in its effects, while everybody now admitted that absolute permanency did not exist. The only way to tell whether it would be permanent or not was by experience, and those who availed themselves of the experience of a century of vaccination, to assail Jenner, who necessarily did not possess that experience, were the same persons who very often refused to yield to the teachings of experience when they inquired now what had been the effects of vaccination. Jenner was the first to illustrate a principle which seemed destined to play an important part in the history of preventive medicine. Surely this alone was a high tribute to Jenner and the value of his discovery. His name was held in reverence by the highest men of science and the most civilized countries in the world. Some of those countries had commemorated his centenary. Jenner was an Englishman and were Englishmen to be behindhand in testifying their admiration of the man and their sense of the benefits he had conferred on humanity? Prof. Michael Foster who seconded the resolution, said he would like to re echo the words of Lord Herschell and claim for Jenner's work scientific merit. Except, perhaps, for the fact that the labors of Dr. Monckton Copeman and others tended to minimize the dangers of vaccination, relatively little progress had been made in the principles laid down by Jenner till the time of Pasteur. Jenner was governed by the idea we now call the doctrine of attenuation, a doctrine revived by Pasteur and which had become the basis of our great progress at the present time. Lord Lister took occasion to correct a mistake which he made in his presidential address to the British Association at Liverpool. The mistake, he said, had been made a very great deal of in the newspapers, and had been taken advantage of by the antivaccination party in distributing a leaflet to that meeting. The statement was to the effect that smallpox was absolutely unknown in the German army as a result of the revaccination of all recruits. He had quoted from memory after reading an authority on the subject and if he had stated that "fatal" smallpox was absolutely unknown in the German army he should have been speaking the literal truth. Such being the case, he did not think it necessary to rectify in a public manner the mistake he had made when a letter appeared in the *Times* calling attention to this mistake. He had since obtained the official documents from which the writer of this letter had taken the facts to convict him. Now he asserted that from 1874-75 to 1886-87 the only death from smallpox that occurred in the German army was that of a man who was proved not to have been properly vaccinated. If, instead of deaths, he took the cases, in 1886-87 there were 7 out of 344,000 men, in 1885-86 there were 6, in 1884-85 there were 7, and so on. He thought, therefore, he had not made any very serious blunder after all. The writer of the letter had also contended that vaccination had had no influence whatever in diminishing the death rate from smallpox in the German army. He (the speaker) had examined the official statistics and found that from 1874-75, when the Compulsory Revaccination Law was passed, the mortality from that cause in the army had become absolutely *nil*. Not only so, but, as a German authority himself had been lately saying, Germany might now be said to be practically free from smallpox. He was glad to take this opportunity of correcting his mistake, because it enabled him to support the principle of vaccination from German statistics. He pointed out the value of research on the lines laid down by Jenner, giving as examples Dr. Koch's treatment of rinderpest in South Africa, M. Haffkine's inoculation in connection with the bubonic plague, the experiments of Dr. Yersin, and the results obtained by the use of antidiphtheric serum in this country, which had saved a multitude of young lives.—*Lancet.*

On the Teaching of Surgery.—The address presented to the Section on Surgery at the recent meeting of the British Medical Association by Christopher Heath, F.R.C.S., called attention to the remarkable recent progress in abdominal surgery. Twelve years ago neither appendicitis nor Kraske's operation for removal of the rectum was mentioned in the "Dictionary of Practical Surgery," and Kraske's original paper was only published in 1885. In British surgery appendicitis dates from a paper read by Treves before the Royal Medical and Chirurgical Society in February, 1888. In speaking of the infrequency

of perineal lithotomy today he said: "Looking back over forty years of professional life, nothing surprises me more than the change which has come over the treatment of calculus. In my student days, to see Fergusson cut for stone by the lateral method was to witness an operation as near perfection as was conceivable, and the dexterity and rapidity with which the calculus was extracted was only marred by the frequency with which death from septic causes spoiled the skill of the surgeon. To have one's first lithotomy was an event in the life of the young surgeon, and every now and then a reputation was spoiled by some *contretemps* in the public performance of the operation. Later, I was the frequent witness of my colleague, Henry Thompson's skill in using the lithotrite to break up the calculus in a series of 'sittings.' Then came 'litholapaxy,' or rapid lithotrity, which we owe to Bigelow, the great American surgeon; and lastly that recurrence to the old high or suprapubic operation which was due to the Scandinavian surgeon, Petersen. Hence the student of today rarely, if ever, sees a perineal lithotomy, and as a consequence his interest in the anatomy of the parts concerned in the operation has greatly diminished." Teachers in anatomy find it difficult to secure neat dissections from the student as various museums contain excellent preparations in spirit, a condition of affairs to be deplored in that the essential to advance in surgery is a working knowledge of anatomy. In Great Britain also anatomic teaching is getting more into the hands of anatomists who are not surgeons, and other than surgical relations care thus emphasized. The same being true in physiology and chemistry, when these gentlemen happen to become examiners this tendency to specialize becomes very marked, and the unfortunate medical student becomes the victim of science (falsely so called), and sometimes develops into that marvelous being, a London B.Sc.

Bacterioscopic Work on the Bacillus of the Plague.—Dr. Wilson of the Hoagland Laboratory, Brooklyn, has for some time been engaged upon experimentation as to the viability of the plague germs. The culture with which his experiments were made was obtained through the kindness of Dr. W. F. Arnold, U. S. Navy, who obtained it from Yersin in China, and brought it directly to the United States, renewing it at San Francisco. Upon obtaining the culture, it was transferred to suitable media, and test was made as to its virulence on susceptible animals such as guinea-pigs, mice and rabbits; the results showed that it was still very virulent. The method used was that of Sternberg. A series of 5 c.c. cultures in beef tea were made in tubes of a uniform shape and size, and these were allowed to incubate for twenty-four hours. They were then exposed for ten minutes (a previously ascertained time being allowed to bring the temperature of the culture up to that of the bath) in a water-bath at the following temperatures: One at 50, one at 52, one at 54, one at 56, one at 58 and one at 60 degrees C. From each one, after cooling down to the temperature of the room, transfers were made into fresh beef tea, and these transfers placed in the incubator. After twenty-four hours in the incubator, it was seen that the ones exposed at 50, 52, 54, 56 and 58 degrees showed a good growth. The one at 60 did not grow. Another series was started at points between 53 and 60, with the result that the ones at 58, 58.5, 59 and 59.5 showed a growth, while the one at 60 did not grow. This would seem to fix the normal death rate at 60 degrees C. or about 140 F., for ten minutes' exposure under moist heat. It was decided to use infected articles of different absorbing properties, and consequently different degrees of dessication, so as to approach the natural conditions as nearly as possible. Cover-glasses, pieces of filter paper and small pieces of wool blanket, were chosen for these reasons, and also because the same articles were used in the cholera experiments in 1892. These articles were first sterilized and then infected, each piece with a drop of a twenty-four hour bouillon culture. They were then left in a dark closet over night to dry, and the next day placed in an oven. Every hour a piece of glass, paper and blanket was removed and tested as to its vitality. Dr. Wilson's experiments showed that the bacillus died out before the end of the first hour on the glass; before the end of the fourth, on the paper; and was living at the end of the sixth hour, on the blanket. Experiment was also made to ascertain how long the bacillus would survive on the glass, paper and blanket at the temperature of the rooms (21 degrees C.) in a dark closet excluded from the action of the sunlight. A series of test tubes was taken and their closed ends broken open. Pieces of cover-glass, filter paper and blanket were then placed in the tubes, the ends of which were plugged with cotton and then carefully sterilized. The object of this was to secure a normal circulation of air. The pieces of paper, glass and blanket were then infected, each with a drop of a twenty-four hour old culture, and the tubes placed in a dark closet. At intervals of seven days these infected pieces have been removed and placed in fresh media. On all these materials the bacillus has survived up to the date of this report, forty-two days. His conclusions were: 1. The thermal death-point of this organism is one or two degrees higher than that of the majority of pathogenic bacteria of the non-sporulating variety. 2. Differing widely from cholera, sunlight and dessication can not be relied on to limit the viability of this bacillus under commercial circumstances. 3. Rags, nails, ballast and general merchandise coming from infected ports should be subjected at either the port of departure or the port of entry to a thorough system of disinfection. Experiments have been made in this series of Dr. Wilson only with carbolic acid. It has been found that an exposure for two hours, to a 1 per cent. solution of carbolic acid, suffices to destroy the life of the bacillus. This observation has subsequently been confirmed by Kinyoun. The morphology, cultural characteristics and pathogenesis of this bacillus has never been carefully worked out under favorable laboratory surroundings. The details of this work will shortly be published. Dr. Wilson refers briefly to the researches of others, as follows: "Some work has already been done in this direction by Kitasato and Yersin, but it was done under adverse circumstances and the results obtained were not final. Kitasato found that cover-glass preparations of the contents of a bubo exposed to the air of a room at 23 to 30 degrees C. showed no growth after four days. Other cover glass preparations exposed directly to the sun's rays showed no growth after three or four hours. He found that beef tea cultures heated for thirty minutes in a water-bath up to 80 degrees C., were destroyed. At 100 degrees C., in the vapor apparatus, they were destroyed in a few minutes. It will be seen that these experiments were made only with thin films; and in the first or dessication experiment no effort was made to exclude the sunlight, and in the second or sunlight experiment the film must undergo dessication at the same time."

PRACTICAL NOTES.

The Summer Diarrheas of Infants.—As the result of a bacteriologic and anatomic study of the summer diarrheas of infants, Booker (Johns Hopkins Hospital Reports, Vol. vi, 1897) reaches the following conclusions: 1. The conditions for the development of bacteria in the intestine of infants affected with summer diarrhea are different from those obtaining in the healthy intestine of milk fed infants. These conditions are favorable to more varied bacterial vegetation, to a richer growth of varieties of bacteria, found inconstantly and in small numbers in the healthy intestine and to a more uniform distribution through the intestine of the two constant varieties of milk-feces bacteria: the bacillus lactis aerogenes and the bacillus coli communis. 2. No single micro-organism appears to be the

specific exciter of the summer diarrhea of infants, but the affection is generally to be attributed to the result of the activity of a number of varieties of bacteria, some of which belong to well-known species and are of ordinary occurrence and wide distribution, the most important being the streptococcus and the proteus vulgaris. In the superficial epithelium of the intestine is apparently to be found the chief protection of the mucosa against the invasion of bacteria. 3. The pathologic lesions found in the intestine and other organs of the body in the summer diarrheas of infants indicate that bacteria exert a direct injury upon the tissues in some instances, whereas in others the damage is brought about indirectly through the production of soluble poisons. 4. The pathologic lesions of the inflammatory forms of summer diarrheas of infants are of a serious nature and show great variety. In many cases the intestinal lesions are very extensive, not infrequently much of the thickness of the mucosa being entirely destroyed; in other cases the intestinal lesions are slight and the more serious damage is recognizable in other organs. The number of organs that may be affected and the variety of lesions furnish an explanation for the great variation in the clinical features and the difficulty experienced in making a reliable prognosis. 5. When the summer diarrhea of infants passes into an inflammation of the stomach and intestine it is no longer a mere affection of the gastro-enteric canal, but a general infectious disease or intoxication in which other organs of the body participate, either as the result of an invasion of the body by bacteria, as is often the case in the lungs, or from the effects of poisons absorbed from the intestine, as occurs in other organs. 6. A correspondence between the clinical features and the bacteriologic findings and anatomic changes exists in many cases, so that three principal forms of summer diarrhea of infancy may be d stinguished, viz., dyspeptic or non-inflammatory diarrhea, streptococcous enteritis and bacillary gastro enteritis. Dyspeptic diarrhea is free from the phenomena of inflammation and is characterized by lumpy, acid stools which contain no leucocytes or epithelial cells and have among the bacteria chiefly bacilli coli communes, with a few bacilli lactis aerogenes. This is the mildest form of summer diarrhea, but it frequently shows a tendency to progress further and it is often the first stage of the inflammatory forms of the disease. Streptococcous gastro-enteritis is characterized by symptoms of general infection, extensive ulceration of the intestine partaking of a suppurative character, frequent slimy stools which contain great numbers of leucocytes, with the predomination of streptococci, although it is rarely if ever a pure streptococcous infection. In a few instances streptococci so largely predominate in the wall and contents of the intestine that no other organism can be considered as having important bearing on the affection. In most cases there are a great number of bacilli with the cocci, and their activity is probably more or less felt, although the prevailing influence is exerted by streptococci. There is often a considerable difference in the course of the disease in cases having the characteristic features of a streptococcous infection, some patients responding readily to treatment, while others are not influenced by it in the slightest degree and continue steadily to grow worse until the disease reaches a fatal termination. It is probable that the streptococci found in these cases are not always of the same species, though no attempt has been made to differentiate between them. Bacillary gastro-enteritis is characterized by a general toxic condition, less extensive inflammation and ulceration in the intestine, more or less frequent watery or pasty stools, containing but few if any leucocytes and in which bacilli greatly predominate. It is, however, very seldom that one variety of bacillus is so greatly in excess as to preclude the attaching of importance to the presence of other organisms. As a rule a number of varieties of bacilli and some streptococci are found. In typical instances any one of these three forms of the disease may be easily recognized, but there are many transitional cases which apparently do not belong to any one of these forms and which are probably due to a more decided mixed infection, in which no one bacterium especially predominates and the disease-phenomena are influenced by the activity of a number of varieties of bacteria. Little is known of the effect of alterations in the quantity and quality of the normal ferments and juices of the alimentary tract upon the digestive disorders of infancy, but there are grounds for the belief that such changes may be of important consideration in these affections.

Successful Extirpation of a Ruptured Spleen.—At a meeting of the Medical Society of Cologne Plücker (*Deutsche medicinische Wochenschrift*, Aug. 12, 1897, suppl., p. 154) reported the successful extirpation of a ruptured spleen by Bardenheuer. An analysis of the results of this operation shows that these were most unfavorable from removal of the leukemic spleen, with a mortality of more than 90 per cent.; then follow essential hypertrophy of the spleen, with a mortality of 57 per cent., malarial hypertrophy, with a mortality of 55 per cent., echinococcus cysts of the spleen, with a mortality of 40 per cent., and finally sarcoma of the spleen, with a mortality of 30 per cent. The total result was made the more favorable by the cases of simple cyst of the spleen and wandering spleen, which were operated on without a fatality. A plea was made for conservative surgical treatment, especially for simple cysts and wandering spleen. Open wounds of the spleen offer a favorable prognosis, whereas subcutaneous injuries are very often fatal. Of the latter, injuries of the malarial spleen are to be separated from those of the healthy organ. Among twenty-four cases of rupture of the malarial spleen recovery ensued in six, while of twenty-eight cases with subcutaneous injury of the healthy spleen recovery ensued in two or three. The case reported occurred in a man 44 years old, who fell a distance of thirteen feet. When seen the patient presented symptoms of shock, with a small, running pulse and inaudible heart sounds. The sixth and seventh ribs on the left side were found to be fractured and crepitation could be heard. There was severe pain in the precordium. Under appropriate treatment improvement took place in the pulse and in the general state. On the other hand absolute dulness on percussion developed in the dependent portions of the abdomen upon the left side, extending upward to the axilla, but not involving Traube's semilunar space. There was also dulness posteriorly on the left side of the chest up to the level of the spine of the scapula, with bronchial breathing and diminished vocal fremitus. The urine was normal and the stools contained no blood. On the eleventh day the patient, who had been gradually improving, complained of sudden pain in the abdomen and in the precordium. The pulse was small and 140. Dyspnea was marked and diaphragmatic breathing was suspended. The abdomen was distended, but under appropriate treatment improvement took place. Exploratory puncture of the left side of the chest now disclosed the presence of blood. The temperature rose and tenderness and dulness on percussion in an area as large as the palm of the hand were found below the ensiform cartilarge. The heart was displaced upward and to the right. It was believed that rupture of a hemorrhagic extravasation had taken place into the subphrenic space with suppuration. Accordingly a trap-door flap, attached posteriorly, was turned back and the two lower ribs resected. The kidney was found intact. The peritoneum above was felt to be thickened and its division exposed a cavity filled with blood coagula, closed off below from the peritoneal cavity, and bounded above by the concavity of the diaphragm. In the midst of this hemorrhagic collection lay the spleen, almost double its normal size, with its capsule torn in several places. An attempt to bring the viscus into the wound was attended with rupture of the pedicle, without, however, noteworthy hemorrhage. Suppu-

ration had begun in the extravasation. The removed organ displayed a large oblique fissure from above downward on its concave aspect. At the hilum there was also a stellate laceration and the main vessels had been torn through. The large cavity was tamponed after removal of its contents. The further progress of the case was uneventful. The wound gradually closed and the patient bore the loss of his spleen well. Examination of the blood after the operation showed a diminution in the hemoglobin, without any alteration in the relation between the red and colorless corpuscles. In the course of two months there was a distinct increase in the number of colorless cells, and at the same time the peripheral lymphatic glands became enlarged. The thyroid, however, showed no change. The general condition was good. Further glandular enlargement did not take place, and that which was present grew less.

On the Local Anesthetic Use of Eucain.—Dr. P. Silex of the policlinic of Dr. Schweigger at Berlin, reports favorably concerning the ophthalmic use of eucain, in the *Therapeutische Monatshefte* for June. He says that a little more than a year ago Dr. Vinci introduced his first preparation to the attention of the surgeons at the policlinic and an investigation of its merits has been made during the year. "As a result of these trials I was enabled to say that the remedy is very useful, and preferable to cocain. A solution subsequently placed at my disposal from another source, which also bore the name eucain A, I was obliged to throw aside, as I previously stated, because it caused extremely violent pain in the lids, and very severe reddening of the conjunctiva. Consequently I found myself at variance with the opinion given by me at the time to my colleague Vinci. As, however, I observed equal care and precaution on both occasions, and there was no difference in the clinical material, I concluded that the solutions of eucain A were not the same, and that perhaps one was not so free from acid or something, as the other. Dr. Vinci was quite right when he wrote that the investigations in the clinic gave a good result; on the other hand I could not ignore the unpleasant symptoms which I subsequently observed. Respecting eucain B, I am now in the position to make a further favorable report. It has been employed for the last two and one-half months by Professor Schweigger in various operations on eyes, especially in forty-nine cases of senile cataract, with satisfaction. Anesthesia is complete, vascular injection is moderate. Corneal cloudiness does not appear, although it is necessary that instillation should be made as shortly before operation as possible. Four drops suffice within five minutes before the operation. If instillation of the ordinary 2 per cent. solution be too long continued, a very marked hyperemia of the conjunctival vessels appears, and on cutting through the conjunctiva the abnormal flow of blood may conceal the field of operation. Whether the vascular repletion favorably influences the healing of the wound is not yet decided, but in this respect the anemia caused by cocain was determined by Mellinger to have a deleterious effect. If it be necessary for any reason to anesthetize the iris, which can not be effected by the instillation of either cocain or eucain into the conjunctival sac, after incising the cornea a few drops can be injected into the anterior chamber by means of a broad-mouthed pipette. In two minutes at latest the iris becomes devoid of feeling, as I have convinced myself upon two rabbits, as well as in an operation upon a man for cataract."

Dangers in Lean Meat.—Practical experience, as well as theoretic considerations, lead to the conclusion that a lean meat diet continued for any length of time is incompatible with health. Leading medical teachers in France are sounding the note of warning against the use of an exclusive meat diet in diabetes, a disease for which lean meat was formerly supposed to be almost a panacea. A close study of the history of these cases has shown that an exclusive meat diet is not infrequently a cause of death, through the accumulation of so great a quantity of ptomains within the body that the kidneys are unable to cope with them. Professor Boofelt says: "It is the duty of the physician who places his patient upon a lean meat diet to inform him of the fact that he is living close to the border line, and that his situation is like that of a man walking along the brink of a precipice; that he must on no account submit himself to the influence of an anesthetic without first undergoing a few days' preparation, including an entire change of diet; and the truly wise physician will further instruct his patient that it can not be safely adopted as a continuous dietary without the risk of constitutional injury.—*Public Health Journal*, August, 1897.

Success of Stypticin in Arresting Uterine Hemorrhages.—Ten pages in the *Therap. Woch.* of August 8, are devoted to a classified review of forty-nine cases of hemorrhage from the uterus treated with stypticin (cotarninum hydrochloricum, obtained from "narcotin"), at Dr. S. Gottschalk's private gynecologic clinic in Berlin. The results in all but ten cases were "good" or "very good;" one "dubious," nine "nihil." He has had an equally favorable average in 120 cases thus treated to date, and considers it "ideal" in climacteric hemorrhages. If an immediate result is desired he injects a syringe of a 10 per cent. aqueous solution into each gluteus (total, 0.2 stypticin). But the usual method is per os, in pills, powders, gelatin capsules or drops, four to five times a day, each dose 0.05 gram. No inconveniences were observed from its use except in the case of one hysteric patient, who vomited and was unable to sleep after taking one powder. The price has fallen from 6 marks to 50 pfennigs per gram.

Stigmata of Degeneration in Epilepsy.—Dr. A. Ferree Witmer before the Philadelphia Pediatric Society, under head of morphologic deviations from normal, classed asymmetries of skull and face, dental anomalies, inflammations of the skin and marked pallor without organic disease. As functional deviations from normal, he noted retarded puberty, various anomalies of the menstrual function, gluttony, merycismus. For the purely psychic stigmata he applied severer tests, as directed to the attention, memory and association. He required the writing of as many words as possible in one, two and five minute periods respectively; from memory a spoken, written and a simple sentence when read, and as the last of the tentative series the writing down of the associations of some familiar word, *e. g.*, city, hospital, etc.

The Specific Action of Quinin in Malaria.—Dr. E. C. Register, of the *Charlotte Medical Journal*, stoutly maintains that malarial fever, without complications, will subside after the plasmodia disappears from the blood. After a close study of the crescentic and ring-shaped bodies, he says that the alleged failure of quinin is due to its imperfect absorption when given by the stomach and when the temperature is over 102 degrees. In continued malarial fever, if distinct intermissions are produced by antipyrin, acetanilid and phenacetin, the crescentic and ring-shaped bodies will disappear after the administration of quinin as readily as the spheric bodies in an ordinary case of intermittent fever.

Treatment of Non-Tuberculous Arthropathy with Artificial Venous Stasis.—Prof. A. Bier has found his "congestive treatment" of tuberculous joint affections so effective that he has been led to try it on others, and reports its success in various rheumatic and gonorrheal joint troubles, especially the more recent cases. The passive congestion of the part must be intense, and if swelling and blisters occur, so much the better for the result. As soon as the pain will permit, he applies passive movements to the joint, while continuing the constriction, followed by active movements and massage after the elastic band is removed.—*Semaine Méd.*, August 18.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

Per Annum, in Advance $5.00
Foreign Postage 1.75
Single Copies . . . . . 10 Cents.

In requesting change of address, give *old* as well as new location. Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 61 Market Street (Occidental Buildings), Chicago, Illinois.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, Venetian Building, Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the *Editor*, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 61 Market Street (Occidental Buildings), Chicago.

Original communications are only received with the understanding that they are exclusively contributed to this JOURNAL.

SATURDAY, SEPTEMBER 25, 1897.

FOREIGN MEDICAL TRAINING FOR RECENT GRADUATES.

The JOURNAL has already editorially deprecated the too general tendency to consider a brief European sojourn the correct culmination of an American medical education, regardless of the actual scientific profit thus to be derived. In this educational number it is worth while to offer a few words, in addition to what has already been said upon the subject, to emphasize certain points and to touch upon others that were not fully treated in the former utterances.

As has already been said there is an advantage to be obtained by the physician from foreign travel and study if the traveler is fitted by education and natural gifts to receive it. This is not always or even often the case with the recent graduate however, and there are some positive disadvantages in this fashion of ostensibly finishing off an American medical college course with a European trip. It is, in the first place, a direct disparagement of an American medical education in the eyes of foreigners, which a decent patriotic pride should make one wish not to offer; all the more, in view of the fact that as good a professional education can be obtained in any of our great medical centers as anywhere else on earth. Leading foreign teachers have remarked this and have expressed surprise at the prevalent fad, and their judgments were made up from actual knowledge of American medical teachers and teaching facilities and acquaintance at least by reputation with the eminent physicians that America has produced. Those who have most helped to make this reputation are mainly those who have established their own before making a European tour or who were specially prepared by education and training for obtaining the best that Europe could give them before leaving their own country to seek professional knowledge abroad. It would be well if our contribution of medical tourists were all of that type.

At present it is the fashion to visit German medical centers, as it is there that medical students have learned to look for the great lights in medicine at the present time. However this may be, the average American is at a positive disadvantage in Germany from lack of, or imperfect, acquaintance with the language, and without this it is hardly possible to see how he can profit by his German residence. Too often all he gains is a small stock of foreign affectations and an altogether undue valuation of the "made in Germany" trademark in medical matters. It usually takes the victim some little time to outgrow this and a few never quite succeed and suffer in consequence in the estimation of sensible people. It is true that the young physician may find that he obtains a slight prestige among a certain class of patrons by exploiting the supposed European polish his professional education had received, but this is a factitious advantage that is yearly losing its spell and it is doubtful whether the game is worth the candle.

Travel is said often to widen the views and broaden the culture, and so it may do, provided the individual is fitted by training and has the leisure and opportunity to obtain what benefit can be obtained in this way. One can best obtain this benefit when he is thoroughly prepared by having already had what culture could be given him in his own country, for this is a case where the saying "to him that hath shall be given," is most emphatically true. Medical culture follows the same rule and it can be safely assumed that the average recent graduate is hardly yet in the situation to derive the most advantage in a professional way from a residence abroad. He should first, at least, learn the language of the country to which he goes and have some general acquaintance with its medical literature. No medical college course, however thorough, can insure him these accomplishments; they come from prior and after study, and a knowledge of foreign medical literature is scarcely to be attained until after graduation. With it, a foreign tour is largely a superfluity, but it can be made all the more profitable to the tourist. With a fair knowledge of European medical literature the American physician has a great advantage over the average foreigner, who as a rule knows little of what is done in scientific medicine in this country.

In all our great medical centers there are ample opportunities for the graduate student to acquaint himself with the best results of the best work in all languages, not merely that of Germany, which by no means includes everything, and this almost or quite without expense. There has been a great advance in

this respect within the past twenty years, and any actual necessity of going abroad to complete one's medical education certainly does not now exist, whatever may have been the case in former years. As regards scientific culture from foreign travel, it is to be hoped that the time will soon come when European physicians will see it to their advantage to visit this country and study our methods and facilities of medical instruction, and that a real reciprocity will come to be the rule in matters of this kind. In the meantime we can, in probably a majority of cases, consider a medical graduate's foreign tour as a pleasure excursion rather than a serious business enterprise.

THE ADVANTAGES OF HOSPITAL INTERNESHIP.

This is a subject to which but little attention has been given by the journals; perhaps it is because the editors think that the average medical student has neither the time nor the inclination to read anything of a medical nature outside of the prescribed limits. The average student does not read the journals to any extent, but on the other hand, does he try for a hospital position? It is the exceptional man that looks far into the future, who sees the rapid strides of ex-hospital men in the profession, that can make the necessary sacrifice of time and money to obtain the desired end.

A few years ago, the general hospital of one of our largest western cities, drawing its clientelage from a population of over a half million people, a radius of a few miles, a city, a center of medical education, graduating between three and four hundred students annually, gave notice in all the medical colleges, that twelve appointments would be made after a competitive examination. Fourteen came up for the examination, for a position of eighteen months standing, the last six of which would be as house physician or house surgeon, in a hospital accommodating 500, numbering always at least 350 in the house, taking all classes of cases. The same condition of affairs prevails in all the large cities, viz., that only a small proportion of graduates receive hospital training.

Why is it the students are so blind to their own interests? Merely because, in many instances, the value of such an education has not been impressed upon them by those whose opinion they respect. It is the professors of the colleges who should place this subject before their students in the strongest possible terms. It is for the welfare of any college that its graduates should do well, and surely a man of experience will take a higher rank in a community than a man without, especially if that experience be aided by common sense. That a college should progress, it must maintain or increase its matriculation, unless endowed. In the attempt to do this, their highest bid for patronage as printed in the annual announcements, recognized alike by college and prospective student, is the number of their professors who have hospital positions and, especially of late, the number and location of their students who have secured hospital appointments. Is not the latter of far greater importance to the student than the former?

Many students become imbued with the idea that they can not afford the time; that they have their own way to make, and that immediately after graduation, they must rush into the country; to these it may be said that instances are being multiplied of men stepping out of a hospital into a lucrative country practice. Their air of confidence in meeting every emergency, the constant application of the methods they have unconsciously absorbed during their hospital life, soon obtains for them suitable recognition. To obviate this difficulty of losing time, some of the colleges that are requiring four years of attendance for graduation, will take the last year in a hospital in lieu of attendance on the lectures and clinics.

As for the small number who can not or will not apply themselves, whose sole object is in "getting through," in order that they may have framed that inaminate piece of sheepskin without which no graduation is complete, and, hanging it up in their office, imagine that they are physicians, nothing whatsoever need be urged.

There are always some to whom the expense is a serious obstacle, who have just enough money to carry them through college and perhaps for a month or two afterward. To those it may be of interest to know that in every large general hospital, while the internes receive no regular salary for their services, yet there are numerous sources of small if uncertain income, at least sufficient to supply their few wants. Coroner's cases, the signing of insurance certificates, assisting in operations, giving of anesthetics, emergency calls to private cases, an occasional private case of their own, all contribute their mite to the interne's slender income.

The practical experience obtained is not to be measured by pecuniary consideration. Frequently the statement is heard that "a year's experience in a large public hospital is worth ten years of private practice;" even this is placing it upon too low a level. A man in private practice is lucky if he sees twenty-five cases of typhoid fever during his first three or four years of practice. In a large hospital, that number of cases at one time, during certain seasons of the year, is no rarity. Surely the study and comparison of these cases would have an impression so profound as never to be completely eradicated. What a knowledge can be obtained of physical diagnosis by the daily examination of from twenty to twenty-five pathologic chests, continued month after month, new cases constantly presenting themselves! Even a large clinic is no comparison; the noise and bustle,

the hurry of the examination, the absence of any particular interest in the case, the fact that the cases are frequently not seen for four or five days if ever again; all these tend to make any impression but a fleeting one.

The personal instruction of the visiting staff; men for the most part of the highest reputation in the several specialties with which they may have identified themselves, is a matter of the greatest importance. One does not learn the difference between bronchial and cavernous breathing by intuition or by reading about them in books; it is only when such differences have been pointed out practically by a competent instructor, that any variation is detected at all, and then only frequent trial will finally enable slight differences to be appreciated; but when once gained, the knowledge is never lost. The value of knowing men who rank so high is not without its advantages; very frequently a staff surgeon becomes so accustomed to his house surgeon, that a career is opened for the latter as soon as he leaves the hospital.

Finally, what can be of more value to a student of medicine, after prolonged study of the case during life, than to follow it to the postmortem room, and find his diagnosis confirmed or determine wherein he has erred? How often a case apparently clinically easy of diagnosis, presents conditions undreamed of when the autopsy is made. One comes more and more to believe that the man who never makes a mistake in clinical diagnosis, is the very man who does not make postmortems.

At the last annual meeting of THE AMERICAN MEDICAL ASSOCIATION, President SENN, in his address, said that he hoped to live to see the time, and he thought it would occur within the next twenty-five years, when European students would be coming to the United States for medical education, rather than that young American physicians should go abroad for what they can obtain as well if not better at home. If such an education can be obtained in this country, surely it is in the large hospitals rather than anywhere else.

Of late, hospital experience is beginning to be looked upon as a thing of value. In some of the large colleges, notably Johns Hopkins of Baltimore, men are not graduated without having served some time in their own hospital. In applying for a medical commission in the Army or Navy, the applicant is always requested to send in certificate of hospital service, if any, and due credit is given for the same.

Let us by all means have ex-hospital men in our community. Let the college professors encourage their students to compete for the positions, and having climbed one step of the ladder of fame, they will be encouraged to mount to the summit.

Let us have a Department of Public Health!

YELLOW FEVER IN THE OLDEN TIME.

In a rare pamphlet[1] before us we learn that "New York sustained in sixteen years (from 1791 to 1807) thirteen attacks of yellow fever, causing the death of at least five thousand persons, and each time compelling the flight from their homes and occupation of many thousands of the population. And it is another interesting fact that, since the year 1807, New York has been visited by it but twice, viz., 1819 and 1822, and the latter visitation was on the opposite side of the city, against which no complaints of nuisances could be made; and the commencement of this period of exemption was, moreover, coeval with the enforcement of a law for the filling up of *these* slips and the general improvement of those ancient haunts, in which the opponents of its importation so clearly saw the domestic source of the disease." This begins the statement of the *domestic origin* theory, coupled with a sneer at NOAH WEBSTER in his work on "Pestilence" that during the Revolutionary War our country was not visited by yellow fever which "*he* [italics are not ours] would doubtless attribute to an interposition of Providence, though he does not hold so in express language. He speaks of it simply as a 'striking fact' in the middle of his labored efforts to prove the source of nearly all epidemics to lie in domestic local circumstances in combination with meteoric influences and the appearance of comets. A more rational solution of the circumstance may, we think, be found in the fact that during the war nearly all foreign commerce was suspended." The next point is well put in a sharp sentence, to-wit, "upon the borders of the city in the immediate vicinity of the shipping, while the neighborhoods of filth and nastiness were exempt, particularly 'the Collect' in Center Street."

Then again from this pamphlet we glean that not sooner than 1805 were infected vessels prohibited from coming within 300 yards of the Island of New York after being discharged of their cargoes. The supplementary law of 1806 more explicitly restricts the vessels from the West Indies and the Mississippi, arriving between June and October, to only four days' detention at quarantine, and prohibits intercourse between their crews and the city of New York except under regulations of the Health Officer. These were the days of sailing vessels with their prolonged voyages, dirty holds, cramped berths, huddled crews and damp cargoes. Thus there were now acknowledged to be some other transmitters of pestilence besides the individual, as well as a recognition of the law that the longer the quarantine the greater the danger. Another report by the same author, before the same body, read Aug. 5, 1857, upon the epidemic of the preceding year, refers to the etiologic explana-

[1] A "History Chronological and Circumstantial of the Visitations of Yellow Fever at New York," by John H. Griscom, M.D., Physician to the N. Y. Hospital; Fellow of the N.Y. Academy of Medicine; read before the Academy and printed by permission.

tion of the New Orleans Sanitary Commission of 1853, that there is a miasmatic origin of the fever, intensified by both a high temperature and a high degree of humidity. Here is introduced the metaphoric "shears of fate," a harmless instrument when either blade is missing. To this our author replies that, if a law, it is certainly inoperative in New York city or any of its environments. His citations are the epidemics inclusive of the one of 1819, in all of which the visitations had their location on the southeastern margin in the vicinity of the wharves of the East River. Besides these instances, Brooklyn in 1809 had lost between thirty and forty lives in a well-defined area of about two hundred yards semi-diameter, the center of which was a vessel from Havana, on board of which the first case occurred. The first American novelist, BROWN, many years ago wrote a most interesting chapter on the adventures of his hero in the Philadelphia epidemic of 1799, the same in which BENJAMIN RUSH won imperishable renown.

In 1822 the fever shifted its nidus to the western margin of the city, on the Hudson River, the "residence of a population, aristocratic at least in cleanliness and the elegancies of life." At that time *the domestic origin* theorists were forced to yield the field even to the surrender of the graveyard of Trinity Church. The recital of the episodes in the epidemic of 1856 is exceedingly interesting and the name of a pioneer sanitarian, the late Dr. ELISHA HARRIS, is given a merited prominence for the best of work. But as we have hardly room even for scant justice, we must abide with only summaries. We learn that the total number of cases during the summer and autumn of 1856 was 538, more than one-third of whom died of "black vomit." The whole number of cases which occurred within a circle of five miles radius, having its center at the Marine Hospital, counted up to a figure not much below an additional six hundred. After the due crediting of the rigid quarantine laws, much of evil is attributed to the prevalence of winds sweeping along the lines of the pestilence and the function of the tides in floating the débris of ship refuse to the shores with their zig-zag docks and reeking sewers.

Charleston, Norfolk, Baltimore, Philadelphia and Providence have their share of attention as pictures with grewsome details in this gallery of epidemiology, but enough has already been written in proof of SOLOMON'S wisdom that "there is nothing new under the sun." We are also to bear in mind that this pamphlet adheres closely to the subject of preventive sanitation, and has naught to say of the Antilles as the cradle of the disease, or even of the northern portion of the west coast of Africa. Not so, however, of the sailor quarters, always so close to a harbor.

Let us have a Department of Public Health!

THE MONTREAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

There was something peculiarly appropriate in the fact that the British Medical Association should hold its first meeting outside of the British Islands in the jubilee year. The jubilee enthusiasm possibly emphasized the sincerity and fervor of the patriotic emotion everywhere manifest, and as the President of the Association, Dr. RODDICK, said, the meeting would be a powerful influence in knitting together even closer the bonds uniting the great colony to the mother country. It was in truth, as he said, "a great immigration scheme." There was a remarkable consensus of circumstances uniting to bring about a noteworthy unity and unselfishness and to render the meeting quite unique. Canada felt honored by the choice of the meeting place; the railroads wanted travelers and shippers; the country desired immigrants and settlers; and the medical profession by its own good will was able to unite all these and other powerful interests to subserve the common aim, to give a heartiness and good will to the welcome, and to carry to a successful conclusion the great labor of entertaining their visitors. The number of members and invited guests was about 1,200, and with their families there were certainly over 2,000 people to be entertained. For a city relatively small, and a country not so rich as our own, it must be confessed that the work was wonderfully well done. The hotels were taxed, but private hospitality made comfort for all. We heard of some who hired one or more entire houses for their guests. Another hint of the spirit that was active, is the fact that Montreal's most honored citizen and benefactor, Lord STRATHCONA AND MOUNT ROYAL, returned from Scotland where he was spending the summer to open his house and help entertain the members of the Association. To Drs. ADAMI, SPRINGLE and BENOIT, the most hard-worked but most admirable of secretaries, and to Drs. ARMSTRONG and BIRKET of the Excursion Committee, every visitor was indebted for foresight, energy and zeal that made the meeting the pronounced social success all are agreed it was.

Lord LISTER was certainly the most honored guest, and his presence at every meeting seemed almost to partake of a religious reverence. His feeling was kept distinctly human however by the most charming modesty and kindness on the part of our hero of science, and who through all the adulation preserved a simplicity and self-forgetfulness of bearing that endeared him to all.

This is neither the time nor place to say much of the scientific proceedings, much of which we have already laid before our readers. The interest in professional things is suggested by the fact that in several sections the attendance was from one hundred to two hundred, and during one session the number at the surgical section was as high as 350. The address in

medicine by Dr. OSLER drew a great audience, which of course, was delighted with the distinguished physician's review of "British Medicine in Greater Britain." Another historical address was that on surgery, delivered by Dr. W. Mitchell BANKS. The address of the President, Dr. RODDICK of Montreal, was a masterly résumé concerning the medical life and resources of Canada.

We heartily congratulate our Canadian confrères upon the perfect success of their meeting. Every such gathering brings nearer and more certain the attainment of the ideals of our guild, and hastens the coming of the day when all men, as now all physicians, shall be conjoined in a common beneficent work for future humanity.

AMERICAN STUDENTS IN GERMANY.

The United States Ambassador, Hon. ANDREW D. WHITE, having established himself at Berlin, has had his attention called to certain new regulations affecting American students at the German medical centers. The governments of Prussia and all other German states having universities, have made alterations in the terms admitting the attendance of medical students at the clinics. Under the new regulations a considerable proportion of American medical students will be shut out, and it is reported that a medical board of Berlin and Brandenburg has presented a request that still more restrictive rules be enforced. It is the object of these petitioners to draw the lines so close that students from the smaller American medical colleges will need to pass a preliminary examination before they can secure certain clinical and didactic privileges. A prominent German newspaper that has endorsed the movement has expressed the opinion that even in the United States it is a matter of surprise that so much laxity has been displayed, and for so long a time, regarding the admission of American students to so many advantages without any adequate examination as to the fitness of those persons to the instructions that they seek. It is also stated that Mr. Ambassador WHITE has begun an inquiry into the nature and effects of the new regulations.

CORRESPONDENCE.

LETTER FROM MOSCOW.

The Twelfth International Medical Congress.

Moscow, Aug. 29, 1897.

To the Editor:—Numerically the Congress was a great success. In fact, the vast throng everywhere present detracted largely from the comfort of each individual member. The Reception Committees were unprepared to receive the great horde of physicians that poured into the city by every incoming railway train.

The consequence was that for the first day or two after the Congress opened everything connected with its organization seemed to be in a state of perfect chaos, und many of those arrived late had great difficulty in procuring lodgings.

However, the medical profession of Moscow worked with an untiring zeal for the individual comfort of each member, and during the last days of our stay we were most sumptuously entertained.

For the meetings of the general sessions there was no building in Moscow that would seat more than one-third of all the members. Delegates were given tickets for all three of the sittings and of the ordinary members not one-half ever got inside of the National Theater, where the meetings were held.

Of the ten great men whose names were down to address the general sessions, those of Virchow and Lombroso seemed to elicit the greatest amount of enthusiasm. When they arose to speak such were the demonstrations of applause that it was some minutes before they could be heard.

The latter spoke in very bad French and in spite of the warm acclamations with which his appearance on the platform was received, the doctrines that he enunciated, which when crystalized, meant that the criminal was a sick man and was deserving of a physician and not an executioner, were received with many smiles of incredulty by the vast throng that listened to him.

At all the meetings it must have been a source of embarrassment to those who spoke English, to observe what an attitude of unrest took possession of the audience as soon as they began to speak. Dr. Lauder Brunton of London delivered his address in French, which though not exactly Parisian in style, his subject matter was excellent and he was listened to with rapt attention.

The Russian would naturally say, that as we ignore in the main our own language, and use one that is more widely known to the scientific world we expect outsiders to conform to the same rule. Professor Senn's case was an exception, for his subject was one that the medical world recognizes Americans as authority on, and he delivered it in a manner that commanded the strictest attention even from those who did not understand English.

Professor Murphy's address before the surgical section on the suturing of blood vessels was also listened to with marked attention. Dr. Frank's illustration of his absorbable intestinal coupler elicited a great deal of interest among surgeons, and such men as Kocher and many others honored him by calling on him to give repeated explanations of the workings of his ingenious device.

Among those who spoke at the last meeting of the general session was Professor Leyden on pulmonary tuberculosis and though he was warmly received when he began, he read his address in such a low and monotonous tone of voice that not one in ten of those present could understand distinctly what he said. From such an eminent authority we naturally expect too much and hence I believe his audience was disappointed because he had so little to tell them that the well informed did not already know.

Of the sixteen sections into which the work of the Congress was divided, that of surgery seemed to draw by far the largest audience. The section on internal medicine was just across a hall from that of surgery and the contrast in the number present at these sittings was at all times most marked. When von Bergmann was reading his paper on brain surgery the hall in which he spoke was filled to suffocation, though his address must, on account of its extremely conservative tone, have been a disappointment to the enthusiastic brain surgeon. The number of those present could not have been less than seven hundred and fifty.

At the same time, in the section on internal medicine the subject of diabetes was being discussed by the best men in that section and by actual count there were just ninety present. This illustrates the tendency in medicine to neglect that

branch under which must be classified a vast majority of all cases of disease that we are called upon to treat.

The brilliant success that surgeons claim to be constantly achieving in their branch of medicine has blinded the average young physician to the ordinary everyday ailments of humanity and he turns away with disgust from the consideration of any disease that can not be eradicated with the scalpel.

When Bergmann or Kocher mounted the platform to speak they were received with a deafening round of applause such as one is accustomed to hear when a great actor like Irving or a singer like Patti appears before the footlights in a theater.

Across the hall, when a Ziemssen, a Leyden, a Pavy or a Widal rose to speak no such enthusiasm was manifested. Next to the surgical section that of obstetrics and gynecology was the most fully attended.

In the section on internal medicine Professor Thayer of Baltimore read a paper on "Gonorrheal Endocarditis," which was well received. He illustrated his paper by the clinical history of several cases and mounted specimens of blood, where the symptoms were of an obscure septic type, but which a postmortem showed to be due to gonorrheal infection, producing an endocarditis and other symptoms of general infection. His paper was discussed by several eminent men, who confirmed the facts therein claimed, going even farther in their views in favor of recognizing in a gonorrheal contamination a factor in many obscure cases of infection, and one man claimed that 90 per cent. of joint diseases in the adult, not traumatic in character, were produced by gonorrhea.

Though there were about fifty women physicians in attendance at the Congress, Mme. Antonchevitch's paper entitled "Contribution à la symptomatologie des maladies du pancreas," was the only one I heard read by a woman doctor.

She had a poor command of French and her attempt to deliver it without notes was well nigh a failure. The cardinal idea in her paper was that diseases of the pancreas are extremely difficult to diagnose, that the symptoms of an increased salivation is pretty constantly present, especially when the stomach is empty. This increased secretion apparently from the salivary glands is in fact a redundant secretion from all the alimentary tract as far down as the cardiac opening of the stomach. The secretion, she told us, was often so excessive that an effort at vomiting was necessary to throw it all off.

In my last letter from Edinburgh I spoke of my disappointment in not being able to get a single idea from that renowned city of medical lore on the subject of the treatment of croupous pneumonia. I am glad to inform the readers of the JOURNAL that I have at last found a panacea that will jugulate that terrible disease with almost mathematic certainty. After listening for days to the learned dissertations on the symptomatology and pathology of internal diseases, waiting in vain to catch something that would throw some light on their therapeutic management, I was more than delighted when Dr. Spiklai mounted the stand and read his paper on "Le traitement des maladies croupeuses avec la pilocarpine."

The author claims that all exudations thrown out by mucous surfaces are liquified by this agent and in this condition are readily thrown off or absorbed. Its therapeutic application thus becomes a wide one. It is a sovereign remedy in inflammatory diseases of the genito-urinary tracts in both sexes, and when used early will prevent the later septic developments that follow in the train of many of those diseases. But in croupous affections of the air-passages it acts with a rapidity and efficiency that no other remedy or remedies can equal. In laryngeal croup, tracheotomy and intubation can be dispensed with if pilocarpin is used early and properly. That terrible disease, croupous pneumonia, he cures in from three to four days. The only contraindication in the use of the agent is in severe cases of heart lesion, and even in these, the remedy if used carefully is a perfectly safe one. W. S. CALDWELL, M.D.

Antistreptococcic Serum in the Mixed Infection of Tuberculosis.

NEW YORK, Sept. 16, 1897.

To the Editor:—Your issue of September 11, contains the very interesting article on "Streptococcic Infection and Marmorek's Serum," by Geo. W. Cox, M.D., of Chicago. In the discussion following the reading of the paper, Dr. Cox states that there is no work on the subject that he knows of, except his communication.

May I take the liberty to call his attention to some experimental and clinical work done in that line by myself over a year and a quarter ago? The results of these experiments I communicated to the Academy of Medicine of New York at its meeting of Jan. 21, 1897, in a paper entitled "The Hygienic, Educational and Symptomatic Treatment of Pulmonary Tuberculosis," which subsequently appeared in the *Medical Record* of February 13.

Three years ago, when I began visiting the European sanatoriums for consumptives for the purpose of studying this phase of phthisio-therapeutics, I noticed that the newly arrived tuberculous patients, who came there with a rather high temperature, after a few days of rest in the open pure air of the sanatorium, experienced an evident general improvement and very marked reduction of temperature, and this without any antipyretic medication whatsoever. I could not account for this sudden reduction of temperature except by the gradual cessation of the mixed infection, or to speak in bacteriologic language, of the association of micro-organisms, especially that of the bacilli of tuberculosis with the streptococci." It is well known that in the higher altitudes the microbes of suppuration, such as the streptococcus and the staphylococcus, are almost totally absent. Thus it seemed rational therapeutics to attack this perhaps the most offending partner in the mixed infection of tuberculosis.

I wrote to Dr. Marmorek and, through his courtesy, I was promptly furnished with the serum directly from the Paris Pasteur Institute. Prof. Biggs, Director of the Bacteriologic Laboratory of the Health Department of New York, very kindly allowed me to test the antistreptococcic action of Marmorek's serum by a series of experiments on animals in the New York laboratory. These having been satisfactory, I began my clinical experiments.

For the benefit of the many readers of the JOURNAL, who may not have read my article in the *Medical Record* of February 13, I may be allowed to summarize rapidly the result of my experiments with consumptives when there were clinical and bacteriologic evidences of mixed infection. The action of the serum was not always uniform. With patients whose temperature rose over 102 degrees F. for several days, I did not obtain any results. When, however, there was a temperature of only 101 degrees F., or a trifle over, with streptococci in the sputum, a first injection of ten cubic centimeters reduced the temperature from one to one and a half degrees. A second of ten cubic centimeters brought it down to nearly normal. A third, fourth, fifth and sixth of five cubic centimeters each, given first every twenty-four hours, then at longer intervals, helped to maintain the normal or nearly normal temperature, and a general better feeling was experienced by the patient. However, I think it will require much more experimentation to fix the real value of the antistreptococcic serum. Its action seems to depend not only upon the make of serum used,[1] but also upon the degree of virulence of the toxins produced by the streptococci in the system. The earlier the injections are made the better seem the results. I should like to encourage its use in pulmonary tuberculosis whenever there is a mixed infection, and when after a short trial absolute rest, fresh air, and the usual antipyretics have failed.

955 Madison Avenue. S. A. KNOPF, M.D.

[1] Marmorek: "Le Streptocoque et le Serum Antistreptococcique," Annales de l'Institut Pasteur, July, 1895.
Merieux (Lyon) and Niemann (Berlin): "Ueber Antistreptokokken-Serum," Berliner klinische Wochenschrift No. 49, Dec. 7, 1896.

Widal's Typhoid Agglutination Reaction.

St. Paul, Minn., Sept. 19, 1897.

To the Editor:—I have read with a great deal of interest an editorial appearing in your issue of September 18, entitled "Evidence which tends to weaken the value of Widal's Typhoid Agglutination Reaction." I had read the discussion upon this subject which took place at the last meeting of the American Medical Association, and was very much impressed with the fact that where the most careful work has been done there has seemed to be the least divergence of opinion as to the value of this reaction, and the general nature of the reports made as well as the special report made by the Committee seemed to me to leave but little that could cast any doubt upon the specificity of the reaction. The discussion at the recent meeting of the British Medical Society in Montreal, to which I listened with a great deal of interest and instruction, still more firmly established the value of this test. There would really seem to be but two sources of error in the performance of this test at the hands of competent and careful men. One is the fact that the reaction may be absent upon certain days of the disease; this is really very rarely the case and merely indicates the necessity for making more than the one test where a negative result is obtained. The second lies in the fact that occasionally an impure culture, supposed to be typhoid, may give misleading reactions.

There can be no doubt that over refinement in technique has led to some errors of observation, and that on the other hand the acceptance of reports from general hospitals where this test has been performed by several different men leads to error of observation for precisely the same reason that we find similar errors constantly occurring under the same condition where other clinical tests are involved. My own experience based upon the use of the very simplest technique as outlined in my papers published in the *Medical Record* of November 14 and Dec. 5, 1896, has continued to be in all respects favorable to the test which, as I stated at that time, I believe to be worth all the other symptoms of typhoid put together as a means of differential diagnosis. I wrote this letter merely because the editorial question seems to me to unduly magnify certain unimportant differences of opinion upon the question of technique and thus obscure the more important fact that there is but little actual difference of opinion as to the immense clinical value of the test. Yours truly,

Chas. Lyman Greene, M.D.

Chelidonium Majus for Inoperable Cancer.

Chicago, Sept. 20, 1897.

To the Editor:—In a previous number of the Journal I gave an account of the plan of treating inoperable cancer advocated by Dr. Denicenco of Russia. The method consists of injections of two parts of extract of celandin to one of glycerin. The mixture is thrown into the substance of the tumor and also painted on the surface, and some of it taken by the mouth.

Prof. John V. Shoemaker of Philadelphia publishes in the Journal of September 4 an account of five cases in which he tried Denicenco's plan, without getting any effect whatever on the tumors.

On the other hand I tried it in one case, and found that the tumor sloughed out as if destroyed by a caustic, with a great relief of the patient from pain and distress, corresponding closely to the experience of Dr. Denicenco.

Professor Shoemaker's great eminence in pharmacology and therapy insures the carefulness of his tests, yet the total failure to produce any caustic effect in the tumor shows that something was wrong. Perhaps the sample of chelidonium furnished him was inert, or the mixture may have deteriorated after it was made. Dr. Denicenco says his mixture must be constantly renewed, as it rapidly loses strength if kept.

I knew one instance where a well educated physician used for three weeks a fluid extract instead of a solid one, thus making his mixture far too weak. It produced no effect whatever, but when he injected a preparation three times stronger the tumor soon mortified and sloughed out, to the great relief of the patient.

The facts thus far show that a good article, prepared in full strength and not allowed to stand long after the mixture is made, will display its caustic power. It is necessary the herb should be fresh, or at least not very old.

Dr. Denicenco claims that in addition to the local destruction of the primary tumor "the glands become normal." If this is true it is very important, but it seems at first glance at least improbable. I have not had a chance to test the correctness of this statement about the glands, because the latter organs in my case were internal and out of reach.

At present, if there is any value in this plan, it is only for cases which are inoperable, or in which the patient will not consent to operation.

The article of Dr. Denicenco (or Denissenko, as some render the name) first appeared in the *Wratch* of St. Petersburg.

Edmund Andrews, M.D.

65 Randolph Street.

Venesection and Oxygen.

Chicago, Sept. 20, 1897.

To the Editor:—Apropos of the paper by Dr. J. W. Hoff on "Blood-Letting as a Therapeutic Remedy," in the August 28 issue of the Journal, and the letter of Dr. F. Walton Todd in issue of September 18, I am led to relate some of my experiences with blood-letting.

I have perhaps not bled more than a half dozen patients, but have been many times deterred from doing it on account of the popular prejudice against blood-letting.

I have records of two cases which I think especially worthy of report.

The first is that of a man about 30 years old, admitted to Cook County Hospital, Chicago, in August, 1888, during my service as house physician. The patient was suffering from sunstroke. He was unconscious, breathing stertorously, somewhat cyanotic, with pupils dilated and pulse full and bounding. A vein at the elbow flexure was opened and blood allowed to flow until the patient breathed quietly—perhaps twenty to thirty ounces in all. After thirty minutes the patient was conscious and able to talk. Recovery was rapid.

The second case is that of a young man, aged 19. On June 8, 1893, at 9 p. m. I was called and found him suffering great thoracic pain. He had a severe rigor during the afternoon. Temperature 101 F.

June 9—Temperature 101-103, pulse 110; delirious. Pneumonitis left lower lobe.

June 10—Temperature 101, pulse 100. Flighty, but otherwise appears to be doing well.

June 11—Was called in haste at 2:30 a. m. Found the patient gasping for breath; bronchi and throat choked with mucus; respiration 48, pulse 150 and very weak; cyanosis; axillary temperature 105 F.; patient comatose and could not be roused. Spir. ammon. aromat. and spir. frumenti given hypodermically every fifteen to thirty minutes; appeared to cause improvement in all respects. However, at 7 a. m. he relapsed into a worse state than before; respiration 60; lungs, bronchi, trachea and pharynx choked with mucus; pulse 165 per minute, but full; temperature not taken, but apparently very high.

At this juncture I called Dr. A. J. Ochsner, who resided just across the street, in consultation. We quickly decided that the only possible chance of saving the patient was by venesection, to which the parents consented. Since it appeared to us that the patient could not live even fifteen

minutes we prepared him hastily and opened the median basilic vein at the elbow flexure. Between two and three pints of very dark blood, which coagulated almost immediately, was taken. Before the blood ceased flowing the cyanosis had given place to a bright red color, the pulse was improved and respiration much easier. Digitalis and atropin were given hypodermically. He continued to improve for forty-five minutes, then again failed rapidly. Respiration 60, pulse 160 to 175 per minute—at times uncountable.

We gave up then, but I remained to see the end. At 8:30 a. m. he seemed about to take his last breath, but rallied slightly and at 9 o'clock I decided to renew the fight. I sent for oxygen gas and at 10 a. m. gave the first inhalation, having meanwhile continued stimulation and administered a nutrient enema. At first the oxygen was given every ten minutes. At 11 a. m. I left him, still unconscious, but much improved. At 1 p. m. I returned and he greeted me with "Hello, Doctor!" Respiration at this time 60, but not labored; pulse 160; axillary temperature at 3:30 p. m., 105.

June 12—Temperature 101.5 to 103; pulse 132 to 150; respiration 38 to 50. Recovery was slow but complete.

I have not the least doubt that the blood-letting was the primary means of saving this patient's life, though without the oxygen he would probably have died in spite of the bleeding. E. J. MELLISH, M.D.

Blood-letting.

ONEIDA, NEW YORK, Sept. 19, 1897,

To the Editor:—I wish to add my mite and endorse every word in regard to blood-letting by Dr. Todd of San Francisco. In a practice of forty years I have invariably resorted to vene section in all cases of puerperal convulsions and have been fortunate in never losing a patient, and I have had my ratio of cases. Out of nearly two thousand in number, my rule is to bleed at once and repeat if necessary, which has very seldom been the case.

I also bleed in cases of pneumonia and la grippe, especially where the attack is severe, in young and robust patients, and the result has been immediate relief and usually rapid recovery. Not long since I was called in consultation with a young physician; the patient was a robust full-blooded man aged 43 years, who had been sick about a week with inflammation of the right lung. He was suffering terribly from difficulty of breathing, pulse full and hard, finger nails and lips cyanosed, and I advised bleeding and took twenty ounces; before bandaging the arm his pulse had decreased from 120 beats to 96. He made a good recovery with no repetition of his bad symptoms. I fully concur with the venerable doctor in all he says in the last section of his valuable article. H. W. CARPENTER, M.D.

Antiseptic Treatment of Typhoid Fever.

WAVERLY, N. Y., Sept. 17, 1897.

To the Editor:—I simply wish, in the interest of a number of your subscribers, to "say *good-bye*" to Dr. ——. It seems a misfortune that you should be obliged or called upon to publish such jargons, but we your readers become disgusted and hope the columns of the JOURNAL, which we all so much admire, may be kept as free as possible from such rubbish. I am not an advocate of "the Woodbridge treatment," or any man's method, but the principle of treatment advocated so bravely by Dr. Woodbridge I have followed with 100 per cent. of recoveries in eighty-three cases (consecutive).

Respectfully, R. S. HARNDEN, M.D.

ANSWER: The Editor is of opinion that the widest latitude should be given gentlemen wishing to comment upon any topic of interest to any considerable number of the profession. It is in fact the "public opinion" department of our JOURNAL, and we venture the assertion that few of those who read the JOURNAL at all fail to read the "correspondence columns." Neither the Trustees nor the Editor assume any responsibility for the individual opinions of the writers, which indeed must stand or fall upon their own merits or demerits, but we are sure that in the main the letters are full of interest, and have a snap and virility which can not be very prominent in the more formal scientific articles.—ED.

Pederasty vs. Prostitution.

NEW YORK, N. Y., Sept. 20, 1897.

To the Editor:—Referring to Dr. Howard's article, "Pederasty vs. Prostitution," in the JOURNAL of May 15, I would state the following facts: "In Japan, where prostitution is licensed, in some of the provinces tea girls and archery-gallery girls have assumed the position of unlicensed prostitutes. In the two provinces which have produced the greatest statesmen of that country, notably the statesmen who overthrew the old Tycoon and restored the power of the Mikado, Choishin and Tatsuma, pederasty is wide-spread and licensed prostitution was never permitted. In these provinces and among those who hail from these provinces the homo-sexual vice is shamelessly rampant; it is even theoretically defended with would be scientific arguments. In the Saigo rebellion in 1877 a Minister of the Interior was assassinated because he loved the *bichonen* of another statesman. Bichonen is the name given to the *puer*. The Japanese pederasts contend that the practice is an evidence of mental vigor, as showing a power of resistance to the charms of women. It is but telling the simple truth to say that these men from the provinces addicted to the homo-sexual vice represent the ablest minds and the best fighting blood of the empire. The whole modern progress of Japan is due to them.

The harlots of Japan do not represent by any means the "education, wit and wealth" of the country, although in very ancient times all the women of the Taira family, one of the five greatest of Japan, were driven into prostitution by a hostile and victorious clan. It was from this tragic event that the custom arose among the common people to marry prostitutes in order to obtain noble wives.

ALBERT S. ASHMEAD, M.D.

On the Excretion of Urea.

AMSTERDAM, N. Y., Sept. 20, 1897.

To the Editor:—The remarks of Dr. E. P. Stimson in the last number of the JOURNAL upon some statements of mine at the Niagara Falls meeting of the American Association of Obstetricians and Gynecologists, when the subject of eclampsia was under discussion, claim some recognition.

My point was that the elaboration of Haine's modification of Häser's method for the determination of the *total urinary solids* by Dr. Etheridge of Chicago was a very valuable means of detecting renal inadequacy. I placed this in contrast to the Doremus test for *total amount of urea*. The reporter failed to fix the difference, and the figures were therefore senseless.

To those who are unfamiliar with this method of estimating the total urinary solids, references may be found in the Transactions of the Medical Society of New York, for 1896; Gould's Year-Book, for 1897; *Chicago Medical Recorder*, July 1895.

CHARLES STOVER, M.D.

Some Reasons for "Hard Times" Among Physicians.

CHICAGO, Sept. 16, 1897.

To the Editor:—I am very sorry that I can not comply with your letter at the present moment, but will try my best to make it good at my very earliest convenience. From five medical journals, I limited myself to two, including your JOURNAL, so hard is the time on the general practitioner of Chicago. If all the hospitals and dispensaries of Chicago be closed up at

once, and only those admitted who possess a certificate of being poor and entitled to free treatment; if no regular physician would accept a case for treatment until the first physician was paid; and if all the medical colleges would, besides their business views, try at the same time to elevate the medical standard, there would be no difficulty for any practicing physician to pay his subscription fees promptly for any number of medical journals. Thinking that these facts need your special consideration, I remain yours very truly, L. S. B.

PUBLIC HEALTH.

Yellow Fever.—Since our record closed, the new cases of yellow fever which seem to be authenticated are as follows: On the 13th, New Orleans, 6 more suspected cases; Ocean Springs, 4 new cases; Barkley, Miss., 1 new case, 4 deaths in the last ten days; population of this town is said to be 25. Two authentic cases were reported at Mobile. The Southern Pacific Railroad has ceased to sell tickets to Texas points. Spain, which is responsible for the yellow fever center in Cuba, and through whose neglect thousands of Americans have lost their lives, and millions of revenue lost, has decided to quarantine all vessels arriving from ports on the Gulf. Secretary Egan of the Illinois State Board of Health went to Cairo from Springfield, and has since remained there. The Chicago Board of Health made an official announcement that refugees could come to Chicago without bills of health, believing it to be perfectly safe.

On the 14th, 3 new cases were reported at Mobile, New Orleans 5, Scranton 1, and 7 at Edwards. A panic existed at Jackson, Miss., and many of the inhabitants started for other points.

On the 15th, New Orleans reported 3 new cases, and there was 1 death at Biloxi.

On the 16th, there was 1 death at New Orleans, and 1 new case at Edwards.

On the 17th, there were 15 new cases reported at Edwards, 7 at Biloxi, 8 at New Orleans, and 2 "suspicious" cases at Cairo, Ill.

On the 18th, there were 6 new cases, 1 death reported at New Orleans, and 11 new cases at Mobile.

On the 19th, the 2 "suspicious" cases at Cairo, Ill., were pronounced yellow fever by Prof. John Guiteras of Philadelphia, who has been temporarily employed as diagnostician by the Marine-Hospital Bureau.

On the 20th one new case was reported at Cairo and eighteen new cases at New Orleans. The Mississippi State Board of Health has quarantined all mails from infected districts of Mississippi. In Illinois the towns south of the Ohio & Mississippi Railroad, 244 miles south of Chicago, have mostly quarantined against Cairo.

On the 21st there were nine new cases reported at New Orleans and one suspected case at St. Louis; this case from St. Louis is from the same source as the cases at Cairo, namely, from the Government dredge-boat which has been engaged in river improvements at East Cairo, Ky.

On the 22d, New Orleans, death of Dr. Lovell reported; 9 new cases and 2 deaths; detention hospital at Oakland established by Board of Health. Ocean Springs, 7 new cases; Biloxi, 2 new cases and 2 deaths; Louisville, 1 case in a refugee from Mobile; Beaumont, Texas, 1 case; New York quarantine, 2 cases.

The Illinois Central Railroad has issued a circular to the ticket agents of the road, and also to agents of connecting lines, to discontinue the sale of tickets to all points in Mississippi and Louisiana, with the exception of New Orleans, and also through all junctions in these States, including New Orleans. The travel south has practically ceased since the outbreak of yellow fever and the passengers now being carried by southern lines are northbound. Railroad officials say that fewer people are leaving the infected districts than last week.

A camp was opened at Fontainebleau, Miss., September 19, under P.-A. Surgeon J. H. White, U. S. M.-H. S., taking 20 people from Biloxi, 10 from Ocean Springs, 12 from Scranton and 13 from different points. In a week he expects to accommodate 800 people, which he believes is the capacity of the camp. Another camp is to be established near Edwards, Miss., by Dr. Geddings, Passed Assistant Surgeon U. S. M.-H. S. These camps have now only local interest, they being established too late to prevent the appearance of the fever in various other points. At Fontainebleau the same system of sending a special train for refugees, which was originated at Camp Perry, Fla., in 1888, has been followed, but as the fever is now both east and west as well as in towns north, the scope of the camp service is limited.

A correction should be made in the report of last week in regard to Galveston. Dr. H. A. West, the Health Officer, states that there has been no case of yellow fever at Galveston.

In New Orleans, a city well within the lines of almost martial rigor, there have been the usual throngs at the Sunday concerts and in the parks; the theaters have been playing to "standing room only." It can not be said that the "wildest rumors prevail," although there are many hopes for the first appearance of frost and an abundant faith in the Board of Health. Dr. Sanarelli's method of investigation as advised by the National government, have been adopted, with some friction perhaps as regards the technique, but it may be said that bacteriologic research is well under way. Aside from the attacks of illness and some fatal issues suffered by the physicians most in contact with the fever stricken, the penal award of the self-sacrificing, there remains an assurance that the visitation will soon be over, without the charge of inhumanity or even of indifference. Edwin Hawley, assistant general traffic manager of the Southern Pacific Railway Company, announces the following: Although assured that public apprehension has materially exaggerated the seriousness of reports of yellow fever in the vicinity of New Orleans, we have determined to protect the interests of our patrons and avoid any delay incident to possible quarantine restrictions during the prevalence of existing conditions, by dispatching direct from New York to Galveston all Morgan Line steamers taking freight for destinations in Texas, New and Old Mexico, Colorado, Utah, Arizona, California, Oregon, China, Japan, Australia and the Sandwich Islands, so that shippers may continue to route their freight via Morgan Line without fear of detention.

A Health Officer's Proclamation Overruled.—An instance of the tendency of certain judicial officers to set aside a sanitary measure *ex post facto* is found in the case Eckhard vs. the City of Buffalo, recently decided by the appellate division of the supreme court of New York. The plaintiff sued to set aside an assessment for upward of $300 that the city had imposed upon her for certain expenses incurred in the abatement of a nuisance existing upon her premises, namely, an old style yard vault. Whatever nuisance there was, says the court, could have been abated by a cleansing of the foul vault, but the Health Commissioner of that city pursued a more radical course and caused the construction of a sewer connected with properly water-flushed closet or closets on the plaintiff's premises and caused the expenses for the same to be charged up against her. This action of the Commissioner has been condemned by the court, which holds that he was authorized to abate the nuisance in any "reasonable manner" but not to go on and make a costly sanitary improvement at the expense of the owner of the premises "for the benefit of her tenants," assuming, as it would appear, that the acts of the Commissioner were not in reality for the benefit of a community rather than for the individual occupants of the premises. On the part of the city and of the health officers it was offered to show that the action taken was reasonable, because of the existence

of Asiatic cholera at that time at certain seaports of Europe and elsewhere, having more or less close communication with the port of Buffalo, in consequence whereof the health officers of that city had issued a proclamation of great and imminent peril by reason of impending pestilence. Mr. Justice Green, in writing the opinion of the appellate division above mentioned, observes that the proclamation of imminent peril was made in error and that any extraordinary actions for cleansing the city of Buffalo based on that proclamation were also in error. And yet, we may ask, who is to be the judge of an impending danger to the health of a city from imported infections if not the Commissioner of Health? He certainly has to bear the brunt of complaint if he fails in his duty for the protection of the health of his city.

Yellow Fever in Cuba is notably on the increase. All the fatalities so far have been among the Spanish soldiers. Dr. Caminero, stationed at Santiago, reports (September 4) that the sick are taken to the hospitals in public conveyances without protest and that a strange fatuity seems to have seized even the unacclimated. He is to place placards on steamers running between Cuban and American ports warning against these public conveyances.

The New Water Supply of Perth Amboy, N. J.—Water was recently struck at a depth of 175 feet in the artesian well which the city of Perth Amboy has been sinking near the waterworks at Runyon, about seven miles southwest of the town. It was found in fine white sand, below a thick bed of blue clay, and though not as yet quite clear, flows freely from a vertical four-inch pipe, the top of which is sixteen feet above the level of the ground.

Typhoid Fever in Germany.—A special cable dispatch of September 4, to one of our press contemporaries, announces that typhoid fever is almost epidemic at several localities in Germany. The Berlin health authorities are warning the public against the use of milk which has not been boiled.

Diphtheria Epidemic.—According to press dispatches diphtheria is prevalent at Rockford, Ill.

NECROLOGY.

BEDFORD BROWN, M.D., Alexandria, Va., September 13, aged 76 years. During the Civil War he was appointed full surgeon in the Confederate Army by Jefferson Davis; was chief surgeon of the camp of instruction at Weldon, N. C., June to July 1861, when he was assigned chief surgeon of the Southern troops sent from Richmond to enforce General Floyd. Afterward he finished the service as inspector of hospitals and camps. In the medical world he was president of the Virginia Medical Society in 1886; president of the Southern Surgical and Gynecological Association in 1893; member of the Pan-American Medical Congress and of the AMERICAN MEDICAL ASSOCIATION and honorary member of the Medical Society of the District of Columbia.

JOHN H. BEMISS, M.D., New Orleans, September 5, aged 50 years, of yellow fever. Dr. Bemiss was a graduate of the Medical Department of Tulane University of Louisiana; for years president of the Faculty and Professor of the chair of Physical Diagnosis in the New Orleans Polyclinic; visiting physician to the Charity Hospital of New Orleans and member of the Charity Hospital Alumni Association of Louisiana.

JOHN C. BOLLES, M.D., at his home in Montville, Conn., September 11, aged 81 years. He was graduated from the now extinct (Woodstock) Vermont Medical College in 1840, and had held many offices in the gift of his town. A widow, son and daughter are his survivors. He was a type of the old country physician and took pride in being the oldest member of the New London County Medical Society.

CALEB LYON, M.D., Albany, 1871, at his home in Rossville, Staten Island, N. Y., September 11. His father was a former governor of Idaho.——Morison Thomas Hutchinson, M.D., College of Physicians and Surgeons, N. Y., 1889, of Englewood, N. J., September 11, aged 33 years.——John Rendell, M.D., Long Island College Hospital, 1885, of Brooklyn, N. Y., died September 16.——William E. Adams, M.D., Hot Springs, S. D., September 12, murdered on a train at Henderson, Ky.——Burton Z. Aplington, M.D., La Salle, Ill., September 13, aged 41 years, a member of the Illinois State, the North Central Ill., and the La Salle County Medical Societies.——John G. Carroll, M.D., Cleveland, Ohio, September 12, aged 37 years.——Horatio A. Hammond, M.D., Perrysburg, Ohio, September 9, aged 68 years.——E. H. McBride, M.D., Springfield, Mo., September 5.——Leonidas M. Reamy, M.D., Zanesville, Ohio, September 7, aged 61 years.——M. Rooney, M.D., Quincy, Ill., September 12.——Dr. Frithiof Holmgren, Professor of Physiology in the University of Upsala, whose name is associated with tests for color blindness.——Emmerich Poor, M.D., Emeritus Professor of Dermatology in the University of Buda-Pesth, aged 74 years.——Dr. Pirotte, President of the Medical Syndicate of the Western District of Belgium.——T. Debrou, M.D., surgeon to the Hôtel-Dieu of Orleans, author of numerous contributions to surgical literature, aged 83.——Professor Carl Liebmann, head of the Gynecologic Department of the Municipal Hospital of Trieste. Eduard Ritter Von Hofmann, M.D., Professor of Forensic Medicine in the University of Vienna, aged 60 years.——Eugene Vigneron, M.D., lecturer in the Medical School of Marseilles and author of several contributions to surgical literature on diseases of the bladder and urinary passages, aged 35 years.——Theron Tuttle, M.D., College of Physicians and Surgeons, N. Y., 1853, a Brooklyn N. Y. practitioner, September 16, in his 65th year.

SOCIETY NEWS.

The New York State Medical Association will hold its fourteenth annual meeting at the Memorial Hall, 64 Madison Avenue, New York City, October 12, 13 and 14.

Tri-State Medical Society.—The Committee on Arrangements has secured the auditorium of the "Tulane" for the ninth annual meeting, Oct. 12 to 14, 1897, which promises to be the largest gathering in the history of the society. The titles of papers should be sent to the Secretary, Dr. Frank Trester Smith, Chattanooga, Tenn., or to Dr. Willis F. Westmoreland, President, Atlanta, Ga.

Orange Mountain Medical Society Resolutions.—At a regular meeting of this society held Sept. 10, 1897, the following resolutions were adopted relative to the death of Dr. John J. H. Love (*vide* JOURNAL August 7, p. 297, and August 28, p. 453).

Resolved, That in the death of our late friend and associate, Dr. John J. H. Love, this society has sustained a loss which we deeply mourn. A constant attendant upon its meetings, its welfare was ever his earnest care. His voice was invariably raised in behalf of progressive medicine and surgery and his well-weighed opinions were received with that attention and respect which they always merited.

Resolved, That we tender to his family our sincere sympathy in their bereavement, and that a copy of these resolutions be spread upon the minutes of the society and published in the medical press.

WILLIAM PIERSON,
H. B. WHITEHORNE,
JAMES S. BROWN,
} Committee.

Mississippi Valley Medical Association.—The program for the twenty-third annual meeting of this Association is now in press, one of the most complete ever presented at any meeting. It contains some one hundred or more titles of papers and on this account the papers will be read in two sections, a medical and surgical. The general sessions and the meetings of the medical section will be held in the Liederkranz Hall, the sur-

gical section in the Scottish Rite Hall next door. Both halls are admirably adapted for the meetings. The medical section will be presided over by the President, Dr. Stuck, and the surgical section by one of the vice-presidents. Already all the available space in the exhibit hall has been reserved by some twenty-five firms, and this will be a prominent feature of the meeting. The title of the address on medicine by Dr. Shoemaker, will be "Progress and Problems in Medicine"; the title of Dr. Murphy's address in surgery has not been received. The local committee has provided entertainment in the way of a "smoker" on one evening and a reception at the Louisville Hotel for another evening. The visiting ladies will be entertained by the wives of the members of the profession, and it is hoped that many will come. Trolly rides, luncheons, etc., will be given the ladies. The members of the Association will be welcomed on behalf of the city and State by Governor W. O. Bradley and on behalf of the profession by Dr. William Bailey. The Pendennis Club has very courteously extended the members the privileges of the Club, which is very near the place of meeting.

The Wayne County Medical Society held a meeting September 9 at Detroit, and Dr. A. N. Collins read a paper entitled "Report of a Case of Exophthalmic Goiter." The history of the case read presented many points of interest, some of which would go to support the theory that in the medulla oblongata is to be found the seat of the disease. The report was about as follows:

X. Y., male, age 45, occupation stationary engineer; family history negative, had never employed a physician for himself until present trouble began. The first symptoms which presented, without any apparent cause, were nervousness, tachycardia and enlargement of the thyroid gland with some rise of temperature. Thyroiditis was diagnosed, the patient put to bed, ice applied to the neck, and heart remedies given. In the course of a short time some improvement began and the patient was allowed to resume work, with the result, however, that in a few days the rapid heart action returned, the goiter increased in size and the third classic symptom, exophthalmos, made its appearance. From that time on treatment was without avail; strophanthus, digitalis, trional, cactus grandiflora, atropin, galvanism, were all faithfully tried with only an exaggeration of the symptoms. Glycosuria and signs of bulbar paralysis occurred, pointing to a lesion of the medulla. The patient finally succumbed about eight weeks after coming under the author's notice.

The Doctor theorized concerning the antithesis of exophthalmic goiter and myxedema, stating that in the latter there is deficiency of thyroid secretion producing the pathologic increase of certain of the soft tissues of the body, while the former, owing to a hypersecretion of the thyroid gland, produces a progressive wasting and emaciation. He thought the disease easily divisible into two types, benign and malignant. In the former the classic symptoms supervene after some simple shock to the nervous system which does not produce any organic change, and is therefore curable. The malignant type is most likely due to some organic lesion of one or more of the nerve centers, possibly the medulla.

BOOK NOTICES.

The Liver of Dyspeptics; and particularly the Cirrhosis Produced by Auto-Intoxication of Gastro-Intestinal Origin. By Dr. EMILE BOIX; translated from the latest French edition by Paul Richard Brown, M.D., Major and Surgeon, U. S. Army. G. P. Putnam and Sons, New York and London, 1896.

In this work Dr. Boix seeks to establish the fact that in addition to alcohol as a cause of hepatic cirrhosis, and independent of some other hitherto recognized causes, there is auto-intoxication present, and this auto-intoxication is of gastro-intestinal origin. The author has, we think, demonstrated that there is a peculiar form of hypertrophic cirrhosis which is caused by the passage through the liver of toxic substances produced in a diseased alimentary canal, and he uses the term "dyspeptic liver" just as the term "alcoholic liver" is used to designate the effect of another form of cirrhosis.

The first part includes three chapters, one treating of auto-intoxication of gastro-intestinal origin; the second enumerating products of fermentation capable of exercising a pathogenic action; third, conditions which favor abnormal fermentations and the production of these poisons. In the second part, after some preliminary considerations in regard to the antitoxic role of the liver, the clinical history of the dyspeptic liver with its two forms, congested and cirrhous, are given. Finally, the pathologic anatomy of dyspeptic cirrhosis, which is here placed among the scleroses of the liver. The third part is devoted to the relation of the different experiments upon which the author has based his work. The plates are beautiful, and the translation is well done. This book will be a desirable addition to the physician's library.

The Johns Hopkins Hospital Reports. Volume VI. Baltimore, The Johns Hopkins Press, 1897. Pages 409.

This volume contains seventy-nine illustrations and various reports, as follows: Report in Neurology, by Henry J. Berkley M.D., consisting of studies on the lesions produced by the action of certain poisons on the cortical nerve cells, to which is added a chapter on the intra-cerebal nerve fiber terminal apparatus and modes of transmission of nervous impulses, and asthenic bulbar paralysis. Report in Pathology, by Cullen, Booker and Flexner, under the following heads: Fatal Puerperal Sepsis due to Introduction of an Elm Tent, by Thomas S. Cullen; Pregnancy in a Rudimentary Uterine Horn, Rupture, Death; Probable Migration of Ovum and Spermatozoa, by Thomas S. Cullen and G. L. Wilkins; Adeno-myoma Uteri, Diffusum Benignum, by Thomas S. Cullen; A Bacteriologic and Anatomic Study of the Summer Diarrheas of Infants, by William D. Booker; The Pathology of Toxalbumin Intoxication, by Simon Flexner.

The plates in this volume are heliotypes executed in the highest style of art and some Leipzig chromo-lithographs, and also a few by Hoen & Co., in Baltimore.

The Diseases of Women; A Hand-Book for Students and Practitioners. By J. BLAND SUTTON, F.R.C.S., England, and ARTHUR E. GILES, M.D., B. Sc., London, F.R.C.S., Edinburgh; with 115 illustrations. Philadelphia: W. B. Saunders. London: Rebman Publishing Co. 1897. Price, $2.50 net.

This excellent volume contains the essentials of gynecology in a handy compact form for the use of students. It is well illustrated, and the text has been carefully prepared. Careful examination of the book shows that nothing essential has been omitted, and its teachings are those recommended by the leading authorities of the day.

Principles of Medicine; Designed for Use as a Text-book in Medical Colleges and for Consideration by Practitioners Generally. By CHARLES S. MACK, M.D. Chicago: The W. T. Keener Co., 1897. Pages 133.

"The object of this little book," says the author, "is to show just what is the cure sought in any given practice of homeopathy—to show that that cure can not be intelligently attempted excepting under the guidance of *similia similibus curantur* as law, and to show that one may consistently accept homeopathy and at the same time accept whatever else is good in medicine."

In this nineteenth century, when sectarianism is dying out everywhere, it is refreshing to see this attempt on the part of a Hahnemannic practitioner to revive the dying embers of the homeopathic flame. However, the book is not wholly without some grains of common sense.

The author says on page 85: "I do not teach potency. I advise students to go slow if they tend to believe in high potencies." Again: "I do not use the Organon as a text-book. I think one can better teach homeopathy without the Organon as a text-book than with it." Once more: "It is perfectly well known that a very large majority of us homeopathists do not repudiate practices which we think useful, although they are not instances of homeopathy." In other words, according to our author, whatever he is satisfied cures the patient is

homeopathy, and with such broad claims as this, we may be sure that the homeopaths are better practitioners than they were in former days.

Text-Book on Diseases of Women. By CHARLES P. PENROSE, M.D., Ph.D. Illustrated. Philadelphia: W. B. Saunders, 1897. Price $3.50 net. Pages 529.

There is no lack of text-books on gynecology, but we suppose every gynecologist to be in fashion must write one. If all, however, were able to write from so extended an experience and use such charming English as Dr. Penrose, it would be the better for the profession, and there would be more excuse for writing. The march of science and the progress of pathologic discovery make it necessary from time to time that new text-books shall be prepared for the use of colleges, and the one under consideration is worthy of great praise. The illustrations are very fine and the typography all that could be desired. We venture to predict that this work will take rank among the most popular text-books on the subject, as it deserves to, and that a second edition will be speedily called for. We would suggest, in the second edition, that the author recognize the metric system of dosage to make it conform to the modern pharmacopeia.

American Academy of Railway Surgeons. Report of the Proceedings of the Third Annual Meeting, held in Chicago Sept. 23-25, 1896. Edited by R. HARVEY REED and published by the AMERICAN MEDICAL ASSOCIATION PRESS. 1897. Pp. 282.

In these days of specialism desperate efforts are made to establish a just claim of an alleged specialty to be considered such, and the publication of a volume such as this of the American Academy of Railway Surgeons is a case directly in point, and it must be admitted after an examination of the book that the railway surgeons have fairly made out their case. Albeit there is a tendency to look at everything through the spectacles of the corporation rather than those of the unfortunate patients. This volume is a very handsome one, well edited and is enriched by numerous photographs of members of the Academy, and the papers, which have been heretofore printed in the JOURNAL, are carefully illustrated. Dr. Reed's assertion that "the editor feels that his ambition is being gratified in so much that each succeeding volume of the transactions has excelled its predecessor," is well sustained. The editor says in his preface: "With each year's experience it has been demonstrated that the higher the order of railway surgery the greater the protection of the employe, the passenger and the patient." This is undoubtedly true. The editor might put it in another way, namely, the greater the knowledge of the railway surgeons' association and of the individual members the more efficient they become—a truism which we suppose no one would care to dispute.

The volume will be found very useful not only to railway surgeons but to general surgeons as well, who are not only compelled to treat many of the cases herein discussed, but are usually on the other side of the cases in the witness box when they come up for adjudication in the courts. The volume, which is worthy of all praise, is a very welcome addition to the library of every progressive surgeon.

Atlas and Essentials of Bacteriology. By PROF. K. B. LEHMANN and DR. RUDOLPH NEUMANN. With 63 chromo-lithographic plates, comprising 558 figures and numerous engravings. New York: Wm. Wood & Co. 1897.

This work consists of atlases with explanations of the same, and will be found very valuable for purposes of comparison to all students and laboratory workers. The latter part of the work is devoted to morphology, vital conditions and effects of bacteria and observations on nutrient media. There is a technical appendix which gives recommendations and brief descriptions. This contains the most necessary data, those which in the experience of the authors have proved most practical. The preparation of sections and methods of handling cultures are thoroughly explained. There is no work that we know of to take the place of this for use in the laboratory. The plates are chromo-lithographs, and have been executed by one of the most celebrated firms in Bavaria. As they were prepared under the directions of the authors, their accuracy is unquestioned.

MISCELLANY.

Personal.—Augustus P. Clarke, M.D., of Cambridge, Mass., was chosen an honorary president of the Section of Obstetrics and Gynecology of the Twelfth International Medical Congress, held in Moscow, Russia, August 19 to 26, 1897.

A Mycologic Club.—An interesting society, at New York City, has been formed for the purpose of arousing a wider appreciation of the value of a cheap and abundant supply of edible mushrooms. The members hold monthly meetings, which are devoted to the study of mycologic specimens; and it is expected to interest the public by holding open meetings. The present membership numbers thirty.

Legal Definition of "Maiden."—From an examination of the definitions of the foremost lexicographers, the supreme court of Vermont comes to the conclusion, in the case of State v. Shedrick, that the common ordinary meaning of the word "maiden" is a young unmarried woman or female, not necessarily a virgin, and this meaning of the word it adopts in construing an indictment of a man for adultery with a "maiden."

Large Medical Estates.—The London letter of the *American Practitioner and News*, says that among the wills of the medical profession proved during 1896, that of Dr. Patrick Fraser, £420,000, dwarfed all others into insignificance. Then came Sir John Erichsen with less than £90,000 and Sir George Humphrey with a trifle under £80,000. It is said that, like Sir William Gull's estate of £342,000, Dr. Patrick Fraser's fortune was chiefly built up by judicious investment.

A Source of Sulphuretted Hydrogen.—According to the *Microscopical Journal*, the explanation of the phenomenon why fish could not live in the Black Sea at a depth greater than 200 fathoms, was due to the countless number of microbes that make their home in the ooze at the bottom. Away back in 1850 scientists knew that the superabundance of sulphuretted hydrogen was the destroying agent, but not until recently did the microbiologists point out the true origin of the destroying agent. This microbe, named bacillus hydrosulfuricus ponticus, decomposes mineral sulphates and has the virtual powers of a noun of multitude.

The St. Petersburg School of Medicine for Women.—The Director of the St. Petersburg School of Medicine for Women (Professor Anrep) recently stated that 160 students have entered for the first course. By a recent ukase women who are not Christians will be admitted. The number of such students, however, must never exceed 5 per cent. of the total, which is the actual proportion at present. More than a hundred applicants have had to be refused admission on the score of want of room. The first course of study includes anatomy, histology, physiology and the preliminary subjects, besides dogmatic theology, which is compulsory for the first half year.—*British Medical Journal*, September 4.

Foreign University Intelligence.—Jena: Dr. Richard Neumeister, Extraordinary Professor of Physiologic Chemistry, has retired.—Königsberg: Dr. E. von Esmarch, Extraordinary Professor of Hygiene and Bacteriology, has been appointed to the chair of Hygiene. The chair of Gynecology is still vacant as it has been declined by Professor Bumm of Basel.—Marburg: Dr. A. Schirmer of Basel has been appointed to the newly established professorship of odontology. Dr. A. Dubler, Extraordinary Professor of Pathologic Anatomy and Bacteriology, has been obliged, owing to the weak state of his health,

to retire.—Vienna: Dr. Hugo Wintersteiner has been recognized as privat docent in ophthalmology.—*Lancet*, September 4.

Respiration Due to Hematosis and Osmosis of Dissolved Gases.—Vergara Lope and Herrera of Mexico, who have attracted attention by their studies of the effect of altitudes on the circulation, etc., announce that moisture is the essential condition to respiration. The mucous membrane is always moist, and the oxygen in the air is dissolved by contact with this moist surface and is absorbed by gaseous endosmosis. This is the entire process in fishes, but in warm-blooded animals and man there is, besides this, a chemic endosmosis: the oxygen is attracted through the tissues by chemic affinity with the hemoglobin. The absorption of oxygen is independent of the exhalation of carbon dioxid, which is similarly dissolved and exhaled by the same effect of moisture and gaseous osmosis, but it requires movement of the dissolving fluid. The process is merely dissolving in the lower animals; dissolving plus combination in the higher animals. This process of respiration is identical in a decaying body, a river, a living body.—*Revista de Anat. Pat. y Clin.*, June.

Bacteria in Ink.—It sometimes happens that a trifling scratch or puncture made with a pen gives rise to dangerous septicemia. The chemical constituents of the ink which is introduced by the pen into the wound are not capable of producing septicemia, but microscopic examination proves that the ill effects are due to the liability of ink to contain pathogenic bacteria. Dr. Marpmann of Leipzig has recently published the results of the microscopic examination of sixty-seven samples of ink used in schools. Most of them were made with gallnuts and contained saprophytes, bacteria and micrococci. Nigrosin ink, taken from a freshly opened bottle, was found to contain both saprophytes and bacteria. Red and blue inks also yielded numerous bacteria. In two instances Dr. Marpmann succeeded in cultivating from nigrosin ink a bacillus which proved fatal to mice within four days. This ink had stood in an open bottle for three months, and the inference to be drawn from the inquiry is that ink used in schools should always be kept covered when not in use.—*Lancet.*

Color Photography.—Photography in natural colors appears at last to have been achieved, and if this be so an advance equal in importance to that brought about by the X-rays has been made. The process is at present a secret one and will doubtless remain so until the necessary steps are taken to protect the inventor. From a purely scientific point of view it is regrettable that such a course has been decided upon, but in these utilitarian days there are few, we imagine, who would be justified in finding fault with the inventor on this account. The process, which has been demonstrated in the laboratory of King's College in the presence of such men as Prof. Millar Thomson, Mr. Herbert Jackson, Captain Abney and Sir Henry Trueman Wood, consists in taking a negative in the ordinary way on a gelatin plate which has been treated with a solution of certain salts, the nature of which is a secret. The negative is developed in the ordinary way and differs in appearance but little from an ordinary negative. The positive produced from this looks like an ordinary transparency with no sign of color. It is then immersed after the manner of intensifying an ordinary negative by mercury solution, in three colored solutions, blue, green and red, when the tones appear to possess a selecting action, selecting just that color and tint which characterize the parts of the original subject. The results, it is stated, are exceedingly beautiful and artistic and surpass the achievements of hand work.—*Lancet.*

Medical College for Native Women in India.—The North India School of Medicine for Christian Women was started in Ludhiana a little over two years ago. Dr. Edith Brown, the principal, is supported by a small but well qualified English staff. A very earnest appeal on behalf of its operations comes to us from Miss Harriet Crawfurd of Meerut. The skill of women doctors in India, she says, is now so fully recognized that the demand is far beyond the supply. Crowds daily visit the hospitals and dispensaries, where the energies of the staff are fully taxed to cope with the work. Then there are multitudes of women in secluded homes who would welcome a lady doctor and gladly pay for help and advice. In this school at Ludhiana the great desire is to train up native women for the work. No religious instruction is given in the government hospitals, and native Christian girls can better be trained in such places as the North India School, which is quite unsectarian.

Symptomatology of Alcoholism.—A careful study of 400 alcoholics has been made during the last fifteen years at Zurich under Forel's supervision, and again the fact of heredity is emphasized; 43 per cent. of the cases had one or both parents alcoholic, and 40 per cent. had nervous or mental antecedents. Fifteen per cent. of the patients were wholesale or retail dealers in liquors. One hundred and thirty-two out of 346 had become alcoholics without drinking liquors, consuming merely beer, wine or ciders. Alcoholism is most frequent between 20 and 60 (93.5 per cent.). Below that age a case is almost sure to be direct heredity. All the cases showed various physical, mental and moral alterations: degeneration of the heart, arterio-sclerosis, affections of the stomach, tremor, ataxia, pupillary troubles, general denutrition, etc. One-fifth were sexual perverts (hyperesthesia, precocious debauchery, inversion, exhibitionism). Fourteen per cent. were epileptics; in six cases the attacks followed alcoholic excess and disappeared entirely when the patients refrained from alcohol. The point is noted that the griefs to which patients frequently refer their alcoholic excesses are often found to have followed them.—*Ann. de la Soc. Méd. Chir. de Liége*, June.

A Little Physiology is a Dangerous Thing.—Vegetarians have hitherto been regarded as the most self-denying of mortals in the matter of food, but a new prophet has arisen and it behooves them to look to their laurels. The immortal Hiya, or She-who-must-be-obeyed, enunciated the aphorism: "Fruit is the only true food for man," and now we have Miss Loie Fuller, the *danseuse*, declaring, through the medium of an illustrated paper, that the sole way to prolong life like the patriarchs of old to a hundred years or more is by becoming strictly frugivorous. Skirt dancing is scarcely an occupation calculated to develop or foster asceticism in any form, but the fact remains that one of the most talented exponents of the pastime has made her appearance as an uncompromising denouncer, not only of animal food in general, but even of edibles containing starch. "We are governed by custom, whereas we ought to be led by the promptings of nature," cries this fervent disciple of Plato in her exordium, and then with some inconsistency proceeds to the solemn warning: "We are slaves to the palate, let us strive to become its master." That Miss Fuller's physiology is as novel as it is ingenious the following example will show: "The sugar in the sweet fruits serves the same end as starch in other things. Starchy substances must change first into dextrin and then into glucose, ere they reach the stage dates and figs have already attained. The ripening process has brought them to the condition whereto starch is reduced in the human body. On this development nerve force is exhausted, and the tissues are gradually weakened, all which may be avoided by replacing starchy foods with naturally sweetened ones." In fact, the entire article is brimming over with learning, but alas! that we should have to say so, it is the kind of learning against which Pope warns us.—London *Lancet*.

Louisville.

YELLOW FEVER.—This State, under the direction of the State Board of Health, has inaugurated a very thorough system of inspection of all in-coming trains from the infected district south. An invitation has been extended the refugees from the South, but the hundreds who come to Kentucky must show a clean bill of health before they are allowed to stop at any point. Inspectors of the State Board personally see every passenger on southern trains soon after the State line is crossed, and if any suspicious case is found the orders are to detain it and all the passengers in the car. The baggage on

all these trains is opened and disinfected en route with formaldehyde gas, each trunk or piece of baggage being labeled "disinfected." If the coaches' final destination is at any point in Kentucky, it is fumigated with formaldehyde before it is used again; if it is a through coach it is allowed to proceed. Every passenger arriving in Louisville is sworn to report every morning for a week to the health officer, and if he does not an officer of the Board looks him up at the address given the various inspectors. Louisville has just experienced an unprecedented "spell" of hot weather and a long drouth, both being terminated by a heavy rain and a lower temperature, which of itself is ample to prevent any rooting of yellow fever in the city, should a case elude the vigilance of the inspectors.

TEXAS FEVER.—For some weeks cattle affected with Texas fever have been shipped into Illinois from Kentucky points, and this called forth a protest from that State's officials. Investigation showed that cattle infested with "ticks" have for some time been sent from Tennessee and shipped through Kentucky to Illinois points. Governor Bradley at once called the attention of Tennessee's chief executive to this and a quarantine will be established at once against Tennessee cattle if the practice is not stopped.

MEDICO-CHIRURGICAL SOCIETY.—The first meeting of this Society after the summer vacation was held at the Pendennis Club, the guest of Dr. L. S. McMurtry, with a full attendance. Some interesting clinical cases were reported. Dr. J. M. Williams exhibited the patient from whom the rectum had been resected, some five months ago, for epithelioma, the patient being in excellent condition. Dr. A. M. Cartledge exhibited a specimen of large polycystic tumor, and Dr. W. O. Roberts, a gallstone of peculiar formation, much like a piece of coral.

Washington.

HEALTH OF THE DISTRICT.—The report of Health Officer Woodward for the week ended September 11 shows the number of deaths in the District to have been 126. Of this number 67 were white and 59 colored. Among the principal causes of death were, nervous diseases 20; circulatory 9; intestinal 16; respiratory 16. There was one fatal case of diphtheria; 4 of typhoid fever; 3 of whooping cough.

PAY OF POLICE SURGEONS.—The police surgeons have joined in a petition to the commissioners, urging an increase in their gross estimate for the pay of the police surgeons of the District. Under the present rate the surgeons receive a monthly salary of $45. Last year the calls and office consultations amounted to over fifteen thousand, and under the present salary they were paid for each consultation less than nine cents. Probably no city in the world has a more efficient corps of police surgeons, and the commissioners should recognize their worth and give them a compensation commensurate with their professional labors.

PHYSICIAN TO THE POOR.—Dr. E. F. Cummiskey has been appointed physician to the poor during the absence of Dr. Edward E. Richardson.

TO STUDY IN EUROPE.—Dr. John A. Koch, one of the house staff at the Garfield Hospital, has resigned to go to Vienna, where he will take up a special line of study.

Societies.

The following meetings are noted:

Alabama.—Madison County Society of Huntsville, September 6.

Iowa.—Missouri Valley Medical Society at Council Bluffs, September 16.

Kansas.—The Topeka Academy of Medicine, September 13.

Kentucky.—The physicians of Louisville recently organized the Weaver Club with 200 members.

Michigan.—Calhoun County Medical Society at Marshall, September 14.

Minnesota.—St. Louis County Medical Society at Duluth, September 9.

New Hampshire.—Somerset and Berwich Medical Association at Somersworth, September 9.

Ohio.—Muskingum County Medical Society at Zanesville, September 9; North Central Ohio Medical Society at Marion, September 24; Stark County Academy of Medicine at Canton, September 7.

Pennsylvania.—Erie County Medical Society at Sommerheim, September 7; McKeon County Medical Association at Bradford, September 10.

CHANGE OF ADDRESS.

Alabama Medical and Surgical Age, from Anniston to 2107 Third Avenue, Birmingham, Ala.; Anderton, W. B., from East Quoque to 34 W. 47th Street, New York, N. Y.

Beatty, J. T., from Highlands to 2336 Boulevard, Denver, Col.; Blankner, F., from St. Louis, Mo., to Calumet, Mich.; Braselton, B. F., from Gainesville to Pendergrass, Ga.

Campbell, R. A., from 267 Cedar Avenue, to Room 1, Syndicate Block, Minneapolis, Minn.; Cooke, Henry G., from Holmdel to 7 Livingston Avenue, New Brunswick, N. J.

Eaton, F. B., from Y. M. C. A. Building to Porter Building, San Jose, Cal.; Edwards, F. H., from 315 to 330 State Street, Chicago, Ill.

Hopkinson, B. Merrill, from 1825 N. Calvert Street to 1325 Park Avenue, Baltimore, Md.

Kirpatrick, M., from Boulder, Colo., to 116 Jackson Place, Baltimore, Md.; Knopf, S. A., from 349 W. 58 Street to 935 Madison Avenue (near 75th Street), New York, N. Y.

Luebbers, A. from 2407 N. Jefferson Avenue to 2001 N. Market Street, St. Louis, Mo.

Makuen, G. H., from Cresson Springs, to 1419 Walnut Street, Philadelphia, Pa.; Muir, Jos., from 128 W. 45th Street to 254 W. 34th Street, New York, N. Y.; McDaniel, E. B., from Cove to Baker City, Ore.; McGahan, C. F., from Bethlehem, N. H., to Aiken, S. C.

Orth, D. A., from Milwaukee, Wis., to 756 W. Chicago Avenue, Chicago.

Pipes, Jno. R., from Crestline to Mansfield, Ohio.

Sherman, W. P., from Chicago to cor. River Street and Downer Place, Aurora, Ill.; Stathers, W. E., from Wheeling to Weston, W. Va.

Tessler, Marcus, from Kendrick to Baltimore Block, St. Paul, Minn.

Waiss, G. C., from 342 W Harrison Street to 1022 W. 21st Street, Chicago; Welch, J. P., from Holbrook to Glendale, Ariz.

LETTERS RECEIVED.

Alma Sanitarium Co., Alma, Mich.; Andrews, B. J., Burlington, Vt.; Andrews, Edmund, Chicago, Ill.; Arnold, C. D., El Reno, Okla. Ter.; Ayer, N. W. & Son, Philadelphia, Pa.

Barr, Martin W., Elwyn, Pa; Baker, L. B., Erie, Pa.; Bell, F. A., Dallas, Texas; Blanke, C. F., Tea and Coffee Co., St. Louis, Mo; Boehringer, C. F. & Soehne, New York, N. Y.; Brockhausen, B. E., Lansing, Iowa.

Caldwell, W. S., Moscow, Russia; Camac, C. N. B., Baltimore, Md.; Campbell, T. F., Belle Fourche, S. D.; Calbreath, C. C., Confidence, Iowa; Cole, T. C., Thurman, Iowa; Colyer & Eads, Arthur, Ill.; Conner, J. J., Pana, Ill.; Corr, A. C., Carlinville, Ill.; Cox, E. A., Seaton, Texas.

Doolittle, George, T., Spokane, Wash.; Dorsett, W. B., St. Louis, Mo.

Eastman, Joseph Rilus, Indianapolis, Ind.; Elder, B. H., Peoria, Ill.

Fairchild Bros. & Foster, New York, N. Y.; Fortier, J. J., (2) West Superior, Wis.; Francis, R. P., Montclair, N. J.; Friedeman, Paul, Kiel, Okla. Ter.

Gardner, Jerome, Dayton, Nev.; Giffin, L. M., Boulder, Colo.

Hale, Albert B., Chicago, Ill.; Hektoen, L., Chicago, Ill.; Hoagland, George A., St. Louis, Mo.; Hobart, John P., Cincinnati, Ohio; Holmes, Hattie E. (Mrs.), North St. Paul, Minn.; Horner, Frederick, Marshall, Va.; Hummel, A. L., Advertising Agency, New York, N. Y.; Hutchinson, Woods, Buffalo, N. Y.

Jones, Thomas S., Louisville, Ky.

Kerr, I. J., Cleveland, Ohio; Kinne, Edward, Gayton, Va.; Kneedler, Wm. L., San Diego, Cal.; Koechl, Victor & Co., New York, N. Y.

Langford, M. L., Baileyville, Texas; Learned, J. B., Northampton, Mass.; Lentz, Charles & Sons, Philadelphia, Pa.; Lord & Thomas, Chicago, Ill.; Love, I. N., St. Louis, Mo.; Luebbers, A., St. Louis, Mo.

Mahon, J. B., Pittston, Pa.; Matthews, H. E., Penn Yan, N. Y.; Miller, J. W., Kansas City, Mo.; Montgomery, Liston H., Chicago, Ill.; Musser, J. H., Philadelphia, Pa; McCormick, E. G., Prairie Grove, Ark.; McDill, John R., Milwaukee, Wis.; McEnroe, J. F., Schenectady, N. Y.; McGannon, M. C., Nashville, Tenn.

Oakland Chemical Co., (2) New York, N. Y.

Parke, Davis & Co., Detroit, Mich.

Rohe, George H., Sykesville, Md.

Scheiffelin & Co., New York, N. Y.; Schowengerdt, W. E., Champaign, Ill.; Shoemaker, F., Fort Sill, Okla. Ter.; Smith, J. W., Bloomington, Ill.; Smith, Frank Trester, Chattanooga, Tenn.; Spaulding, Harriet, Leavenworth, Kan.

Tiemann, George & Co., New York, N. Y.

Upshur, J. N., Richmond, Va.

von Quast, E., Kansas City, Mo.

Watts, R. F., Millersburg, Iowa; Wainwright, J. W., New York, N. Y.; Willis, J. B., Weston, Mo.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from September 11 to 17, 1897.

Capt. Junius L. Powell, Asst. Surgeon (Ft. Riley, Kan.), ordered to report to the president of the examining board, Denver, Colo., for examination as to his fitness for promotion.

First Lieut. James M. Kennedy, Asst. Surgeon, will be relieved from duty at Ft. Missoula, Mont., and is ordered to Ft. Washington, Md., for duty at that post.

Capt. Ashton B. Heyl, Asst. Surgeon (Ft. Riley, Kan.), is granted leave of absence for one month.

Capt. Henry A. Shaw, Asst. Surgeon, leave of absence granted is extended one month.

Lieut.-Col. J. V. D. Middleton, Deputy Surgeon General (chief surgeon, Dept. of California), is granted leave of absence for one month, to take effect on or about the 20th inst., with permission to apply for an extension of one month.

Capt. Ogden Rafferty, Asst. Surgeon, leave of absence granted is extended one month.

A board of officers to consist of Major Alfred C. Girard, Surgeon, Major Joseph K. Corson Surgeon: Major Curtis E. M. Munn, Surgeon, is appointed to meet at Denver, Colo., on Wednesday, Sept. 22, 1897, at 10 o'clock A.M., for the examination of such officers of the Medical Department as may be ordered before it, to determine their fitness for promotion.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending September 18, 1897.

Asst. Surgeon H. La Motte, placed on the retired list September 15 for physical disability.